CDP-C67ES/C615

SERVICE MANUAL

US Model
CDP-C67ES/C615
Canadian Model
AEP Model
E Model
Australian Model
CDP-C615

Photo: CDP-C67ES

Model Name Using Similar Mechanism	CDP-C312M
CD Mechanism Type	CDM16E2-5BD3
Optical Pick-Up Block Type	BU-5BD3

SPECIFICATIONS

System: Compact disc digital audio system
Laser: Semiconductor laser ($\lambda = 780$ nm)
Emission duration: continuous
Laser output: Max. 44.6 μW*
* This output is the value measured at a distance of about 200 mm from the objective lens surface on the Optical Pick-up Block.
Frequency response: 2 Hz – 20 kHz ($\pm$0.5 dB)
Signal to noise ratio: More than 110 dB (**C67ES**)
More than 100 dB (**C615**)
Dynamic range: More than 100 dB (**C67ES**)
More than 98 dB (**C615**)
Harmonic distortion: Less than 0.0025% (1 kHz) (**C67ES**)
Less than 0.004% (1 kHz) (**C615**)
Channel separation: More than 105 dB (1 kHz) (**C67ES**)
More than 100 dB (1 kHz) (**C615**)
Wow and flutter: Below measurable limit

Outputs
LINE OUT (FIXED) (phone jacks): Output level 2 V (at 50 kiloohms)
Load impedance over 10 kiloohms
LINE OUT (VARIABLE) (phono jacks): Output level max. 2 V (at 50 kiloohms)
Load impedance over 10 kiloohms
DIGITAL OUT (OPTICAL) (optical output connector): Wave length 660 nm
Output level -18 dBm
HEADPHONES (stereo phone jack): Output level max. 15 mW
Load impedance 32 ohms

General
Power requirements:
US and Canadian model:
120 V AC, 60 Hz
Australian model:
240 V AC, 50/60 Hz
AEP model:
220–230 V AC, 50/60 Hz
E model:
110–120 V, 220–240 V, 50/60 Hz
Power consumption: 13 W
Dimensions: Approx. 430 × 125 × 385 mm (w/h/d) (17 × 5 × 15 1/4 inches) not including projecting parts and controls
Weight: Approx. 7 kg (15 lbs 7 oz), net (**C67ES**)
Approx. 6 kg (13 lbs 4 oz), net (**C615**)

— Continued on next page —

MICROFILM

COMPACT DISK PLAYER
SONY

MC-Service

Remote commander RM-D615
Remote control system Infrared control
Power requirements 3 V DC with two batteries size AA (IEC esignation R6)

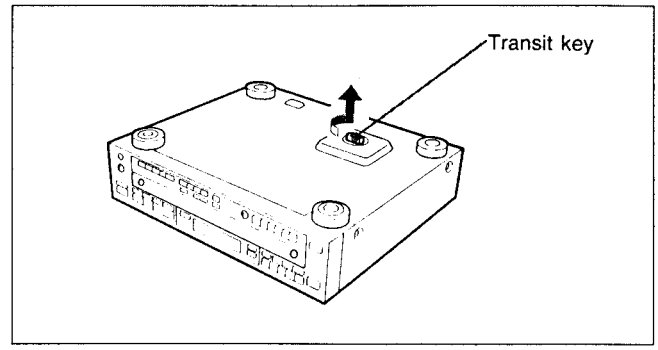
Supplied accessories
Connecting cord (1)
(2 phono plugs ↔ 2 phono plugs)
Remote commander (1)
Size AA batteries (2)
Operating Manual (1)

Optional accessory
Audio Optical connecting cord POC-15

Design and specifications subject to change without notice.

Note on the Transit Key

The transit key on the bottom exterior of the unit protects the optical system against shock during transportation. Before operating the CD player, be sure to remove the key by following the instructions on the label, and store it in a safe place.
When transporting the unit, replace the key in its original hole and lock it in place.



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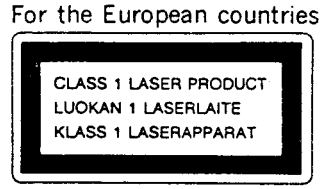
For the European countries



This Compact Disc player is classified as a CLASS 1 LASER product.
The CLASS 1 LASER PRODUCT label is located on the rear exterior.

SAFETY-RELATED COMPONENT WARNING!!

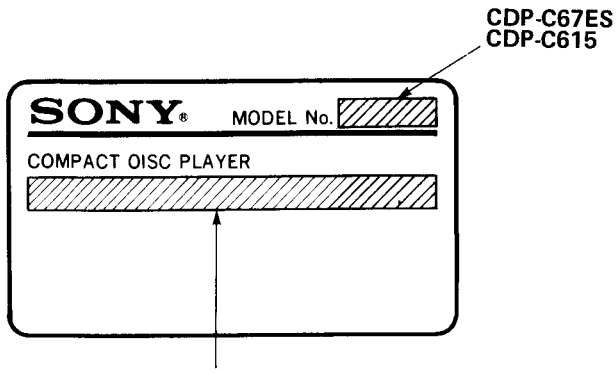
COMPONENTS IDENTIFIED BY MARK ⚠ OR DOTTED LINE WITH MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

ATTENTION AU COMPOSANT AYANT RAPPORT À LA SÉCURITÉ!

LES COMPOSANTS IDENTIFIÉS PAR UNE MARQUE ⚠ SUR LES DIAGRAMMES SCHÉMATIQUES ET LA LISTE DES PIÈCES SONT CRITIQUES POUR LA SÉCURITÉ DE FONCTIONNEMENT. NE REMPLACER CES COMPOSANTS QUE PAR DES PIÈCES SONY DONT LES NUMÉROS SONT DONNÉS DANS CE MANUEL OU DANS LES SUPPLÉMENTS PUBLIÉS PAR SONY.

MODEL IDENTIFICATION

—Model Number Label—



US, Canadian model : AC : 120V 60Hz
AEP model : AC : 220–230V~50/60Hz
Australian model : AC : 240V~50/60Hz
E model : AC : 110–120V, 220–240V~50/60Hz

NOTES ON HANDLING THE OPTICAL PICK-UP BLOCK OR BASE UNIT

The laser diode in the optical pick-up block may suffer electrostatic breakdown because of the potential difference generated by the charged electrostatic load, etc. on clothing and the human body.
During repair, pay attention to electrostatic breakdown and also use the procedure in the printed matter which is included in the repair parts.
The flexible board is easily damaged and should be handled with care.

NOTES ON LASER DIODE EMISSION CHECK

The laser beam on this model is concentrated so as to be focused on the disc reflective surface by the objective lens in the optical pick-up block. Therefore, when checking the laser diode emission, observe from more than 30cm away from the objective lens.

SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety check before releasing the set to the customer:
Check the antenna terminals, metal trim, "metallized" knobs, screws, and all other exposed metal parts for AC leakage. Check leakage as described below.

LEAKAGE TEST

The AC leakage from any exposed metal part to earth ground and from all exposed metal parts to any exposed metal part having a return to chassis, must not exceed 0.5 mA (500 microampers). Leakage current can be measured by any one of three methods.

1. A commercial leakage tester, such as the Simpson 229 or RCA WT-540A. Follow the manufacturers' instructions to use these instruments.
2. A battery-operated AC milliammeter. The Data Precision 245 digital multimeter is suitable for this job.
3. Measuring the voltage drop across a resistor by means of a VOM or battery-operated AC voltmeter. The "limit" indication is 0.75 V, so analog meters must have an accurate low-voltage scale. The Simpson 250 and Sanwa SH-63Trd are examples of a passive VOM that is suitable. Nearly all battery operated digital multimeters that have a 2 V AC range are suitable. (See Fig. A)

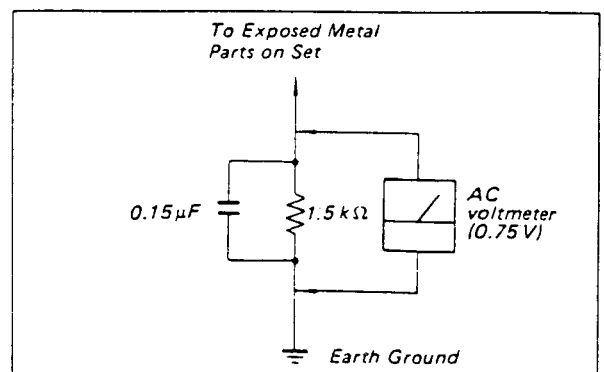


Fig. A. Using an AC voltmeter to check AC leakage.

PROTECTION OF EYES FROM LASER BEAM DURING SERVICING

This set employs a laser. Therefore, be sure to follow carefully the instructions below when servicing.

CAUTION

Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

1. Laser Diode Properties
   - Material: GaAlAs
   - Wavelength: 780 mm
   - Emission Duration: continuous
   - Laser Output Power: less than 44.6 μW*
     * This output is the value measured at a distance of 200 mm from the objective lens surface on the Optical Pick-up Block.

2. During service, do not take the Optical Pick-up Block apart, and do not adjust the APC circuit. If there is a breakdown in the APC circuit (including laser diode), replace the entire Optical Pick-up Block (including APC board).

BESKYTTELSE AF ØJNE MOD LASERSTRÅLING UNDER SERVICE

I dette apparat anvendes laserlys. Derfor skal nedenstående instruktioner nøje følges under service.

Følg iøvrigt instruktionerne i servicemanualen.

ADVARSEL!!

Under service må øjnene ikke komme nær objektiv-linsen på den optiske pick-up enhed. I tilfælde af at det er nødvendigt at kontrollere udsendelsen af laserlys, skal det ske i en afstand af mere end 25 cm fra den optiske pick-up.

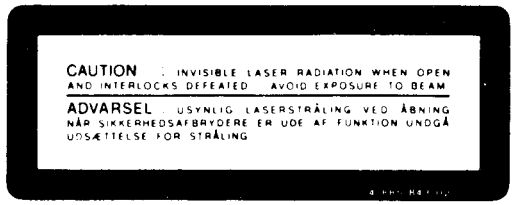
1. Laser-didoe data
   - Materiale: GaAlAs
   - Bølgelængde: 780 nm
   - Udstråling: Kontinuerlig
   - Laseroutput: Max. 0,4 mW*
     * Målt i 1,6 mm afstand fra overfladen af objektiv-linsen pa den optiske pick-up enhed.
   - Klassifikation: Klasse IIIb.

2. Adskil aldrig den optiske pick-up enhed under service, og juster ikke APC kredsløbet (Automatic Power Control). Hvis APC kredsløbet (incl. laser-dioden) bryder ned, skal hele den optiske pick-up enhed (incl. APC printkortet) udskiftes.

LASER ADVARSEL MÆRKNING

Følgende mærkning findes indvendig i apparatet:

1. Advarsel Mærkning

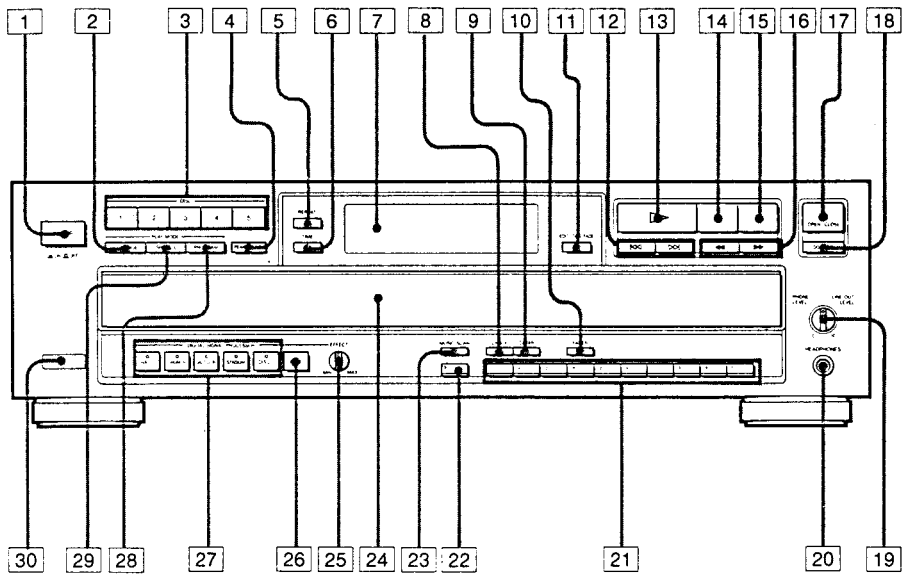

CAUTION : INVISIBLE LASER RADIATION WHEN OPEN AND INTERLOCKS DEFEATED AVOID EXPOSURE TO BEAM
ADVARSEL : USYNLIG LASERSTRÅLING VED ÅBNING NÅR SIKKERHEDSAFBRYDERE ER UDE AF FUNKTION UNDGÅ UDSÆTTELSE FOR STRÅLING

VAROITUS: Laite sisältää, laserdiodin, joka lähettää (näkymätöntä) silmille vaarallista lasersateilyä.

SECTION 1
GENERAL

1-1. LOCATION OF CONTROLS

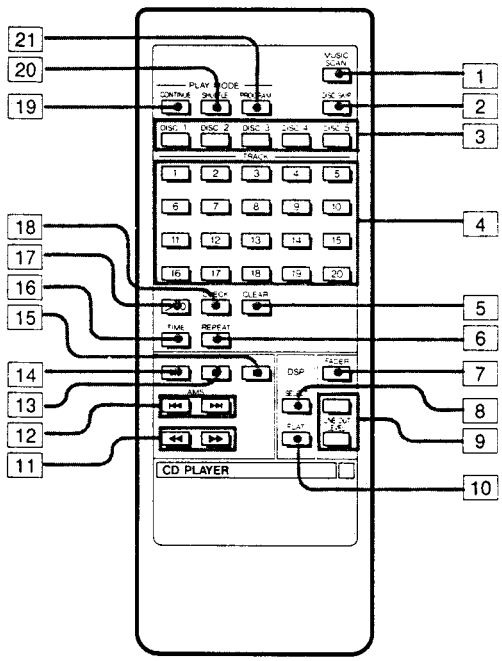
Front Panel



1 POWER switch
2 CONTINUE button
3 DISC 1-5 buttons
4 PEAK SEARCH button
5 REPEAT button
6 TIME button
7 Display window
8 CHECK (program check) button
9 CLEAR (program clear) button
10 FADER button
11 EDIT/TIME FADE button
12 ⏮/⏭ (AMS*) buttons
13 ▶ (play) button
14 ❚❚ (pause) button
15 ■ (stop) button
16 ◀◀/▶▶ (manual search) buttons
17 ⏏ OPEN/CLOSE button
18 DISC SKIP button
19 LINE OUT/PHONE LEVEL control
20 HEADPHONES jack
21 Numeric buttons (1-10)
22 >10 (over 10) button
23 MUSIC SCAN button
24 Disc tray
25 DIGITAL SIGNAL PROCESSOR EFFECT level control
26 DIGITAL SIGNAL PROCESSOR FLAT button
27 DIGITAL SIGNAL PROCESSOR mode select buttons
28 PROGRAM button
29 SHUFFLE button
30 Remote sensor

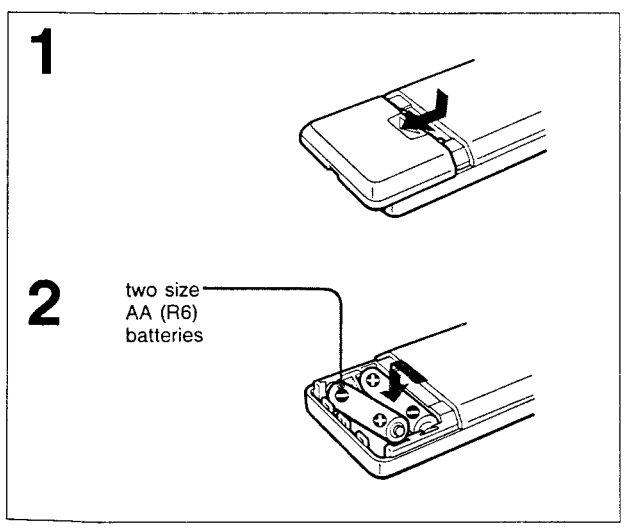
* AMS is the abbreviation of Automatic Music Sensor.

Remote Commander



1 MUSIC SCAN button
2 DISC SKIP button
3 DISC 1-5 buttons
4 Numeric buttons
5 CLEAR (program clear) button
6 REPEAT button
7 FADER button
8 DSP SELECT button
9 LINE OUT LEVEL buttons
10 DSP FLAT button
11 ◀◀ ▶▶ (manual search) buttons
12 I◀◀ ▶▶I (AMS) buttons
13 ❚❚ (pause)button
14 ▶ (play) button
15 ■ (stop) button
16 TIME button
17 >20 (over 20) button
18 CHECK (program check) button
19 CONTINUE button
20 SHUFFLE button
21 PROGRAM button

Installing Batteries in the Remote Commander



On battery life

- About half a year of normal operation can be expected when using the Sony SUM-3(NS) batteries.
- When the batteries are run down, the remote commander will not operate the unit. In this case, replace both batteries with new ones.

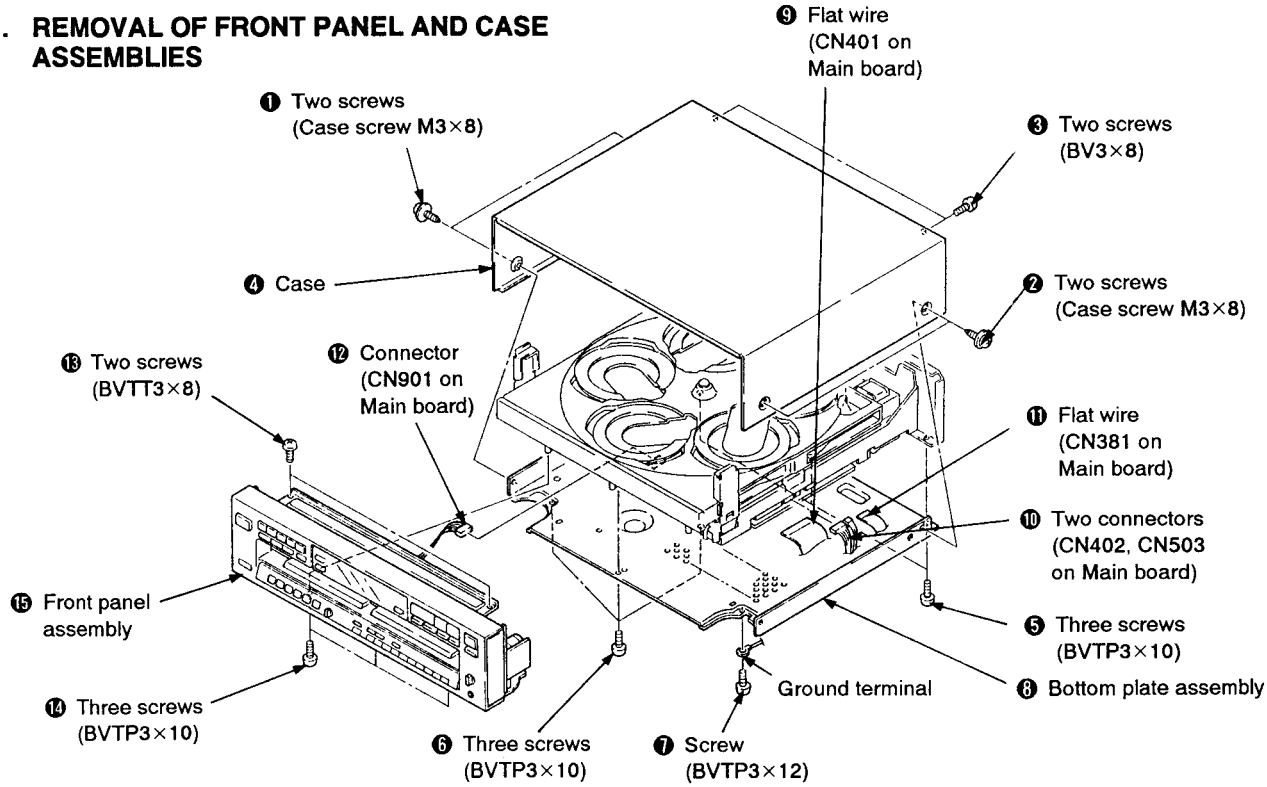
Notes on the remote commander and remote control operation

- Keep the commander away from extremely hot or humid places.
- Avoid dropping any foreign objects into the commander casing, particularly when replacing the batteries.
- Avoid exposing the remote sensor to direct sunlight or lighting apparatus. Such exposure can cause a malfunction.
- To avoid damage caused by battery leakage and corrosion, remove the batteries when the commander will not be used for a long time.

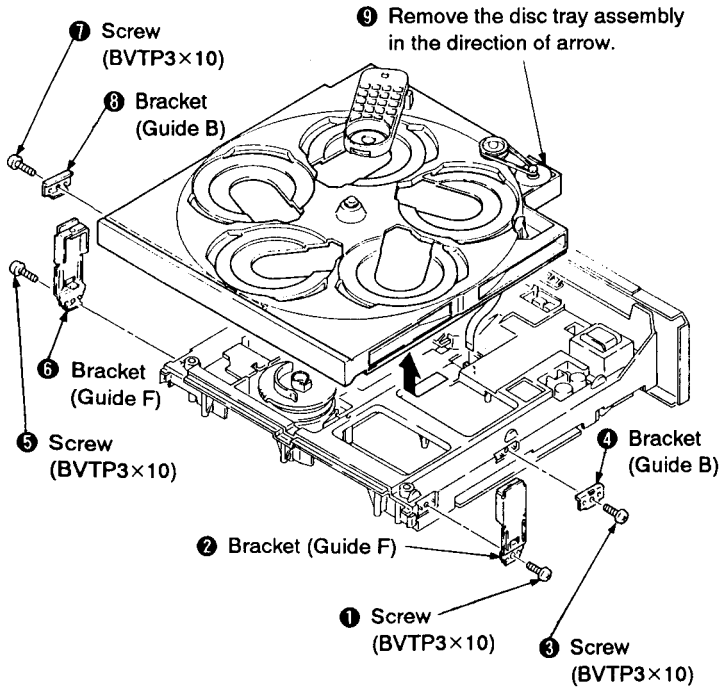
SECTION 2

DISASSEMBLY

2-1. REMOVAL OF FRONT PANEL AND CASE ASSEMBLIES

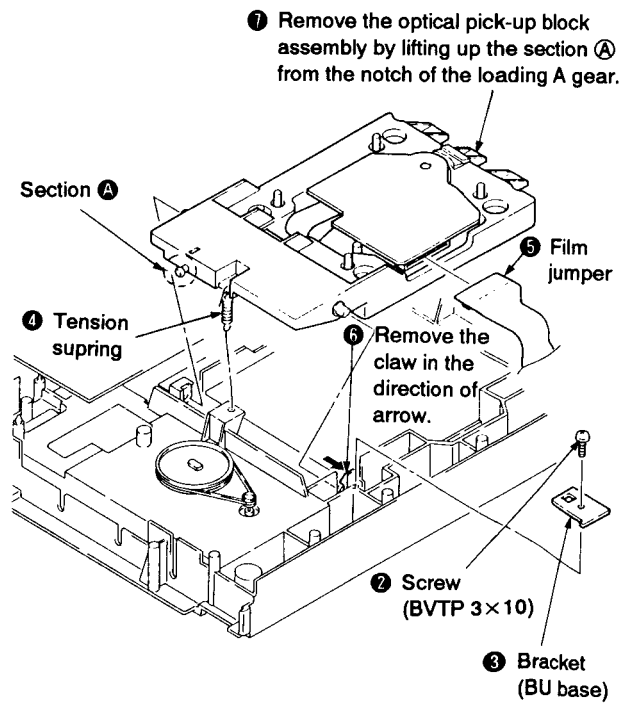

❶ Two screws (Case screw M3×8)
❷ Two screws (Case screw M3×8)
❸ Two screws (BV3×8)
❹ Case
❺ Three screws (BVTP3×10)
❻ Three screws (BVTP3×10)
❼ Screw (BVTP3×12)
❽ Bottom plate assembly
❾ Flat wire (CN401 on Main board)
❿ Two connectors (CN402, CN503 on Main board)
⓫ Flat wire (CN381 on Main board)
⓬ Connector (CN901 on Main board)
⓭ Two screws (BVTT3×8)
⓮ Three screws (BVTP3×10)
⓯ Front panel assembly
Ground terminal

2-2. REMOVAL OF DISC TRAY ASSEMBLY


❼ Screw (BVTP3×10)
❽ Bracket (Guide B)
❾ Remove the disc tray assembly in the direction of arrow.
❻ Bracket (Guide F)
❺ Screw (BVTP3×10)
❹ Bracket (Guide B)
❷ Bracket (Guide F)
❶ Screw (BVTP3×10)
❸ Screw (BVTP3×10)

2-3. REMOVAL OF OPTICAL PICK-UP BLOCK ASSEMBLY

1) Replace the set up side down.


❼ Remove the optical pick-up block assembly by lifting up the section Ⓐ from the notch of the loading A gear.
Section Ⓐ
❺ Film jumper
❹ Tension supring
❻ Remove the claw in the direction of arrow.
❷ Screw (BVTP 3×10)
❸ Bracket (BU base)

SECTION 3

IC101 (CXA1372Q) PIN FUNCTION

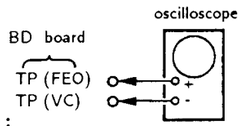
Pin No.	Pin Name	I/O	Function
1	VC		When ± power : GND. When signal power : middle point (2.5V)
2	FGD	I	FGD terminal of gain select (time constant) in focus gain normal, down
3	FS3	I	Connecting terminal between FS3 terminals
4	FLB	I	Capacitor connecting terminal for equalizing low-frequency response of focus servo
5	FEO	O	Focus drive output
6	FE–	I	Focus amplifier inverting input
7	SRCH	I	Time constant connecting terminal to create focus search waveform
8	TGU	I	TGU terminal of gain select time constant in tracking gain normal, up
9	TG2	I	Connecting terminal between TG2 terminals
10	AVCC		Analog power (when ± power : +5V, when single power : +5V)
11	TAO	O	Tracking drive output
12	TA–	I	Tracking amplifier inverting input
13	SL+	I	Sled amplifier non-inverting input
14	SLO	O	Sled drive output
15	SL–	I	Sled amplifier non-inverting input
16	FSET	I	Resistor of 510 kΩ connecting terminal for phase compensation setting
17	ISET	I	Resistor connecting terminal for current source setting
18	SSTOP	I	Limit switch connecting terminal
19	AVEE		Analog power (when ± power : –5V, when single power : GND)
20	DIRC	I	Direct control terminal
21	LOCK	I	"L" : sled free-run protector operates
22	CLK	I	Serial data transmission clock input from CPU (or DSP)
23	XLT	I	Latch input from CPU (or DSP)
24	DATA	I	Serial data input from CPU (or DSP)
25	SENS	O	SENS signal output
26	XRST	I	System reset. "L" : reset
27	C. OUT	O	Output for tracking counter
28	DGND		Digital ground (when ± power : GND, when single power : GND)
29	MIRR	O	Mirror output
30	DFCT	O	Defect output. "H" : when defected
31	ASY	I	Auto asymmetry control input
32	EFM	O	EFM comparator output
33	FOK	O	Focus OK
34	CC2	I	Defect bottom hold input (fed by capacitor coupling)
35	CC1	O	Defect bottom hold output
36	DVCC		Digital power (when ± power : +5V, when single power : +5V)
37	CB	I	Defect bottom hold capacitor connecting terminal
38	CP	I	Mirror hold capacitor connecting terminal
39	RFI	I	RF signal input (fed by capacitor coupling)
40	RFO	I	RF signal input (fed by DC coupling)
41	DVEE		Digital power (when ± power : –5V, when single power : GND)
42	TZC	I	Tracking zero-cross comparator input
43	TE	I	Tracking error input
44	TDFCT	I	Hold capacitor connecting terminal against defects
45	ATSC	I	Anti-shock input
46	FZC	I	Focus zero-cross comparator input
47	FE	I	Focus error input
48	FDFCT	I	Hold capacitor connecting terminal against defects

SECTION 4
ELECTRICAL BLOCK CHECKING

Note :

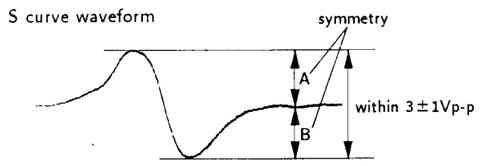
1. CD Block basically constructed to operate without adjustment. Therefore, check each item in order given.
2. Use YEDS-18 disc (3-702-101-01) unless otherwise indicated.
3. Use the oscilloscope with more than 10MΩ impedance.
4. Clean an object lens by an applicator with neutral detergent when the signal level is low than specified value with the following checks.

S Curve Check



Procedure :

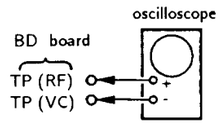
1. Connect oscilloscope to test point TP (FEO) on BD board.
2. Connect between test point TP (FES) and TP (VC) by lead wire.
3. Turned Power switch on and actuate the focus serch. (actuate the focus serch when disc table is moving in and out.)
4. Check the oscilloscope waveform (S curve) is symmetrical between A and B. And confirm peak to peak level within 3±1Vp-p.



5. After check, remove the lead wire connected in step 2.

Note : • Try to mesure several times to make sure that the ratio of A : B or B : A is more than 10 : 7.
• Take sweep time as long as possible and light up the brightness to obtain best waveform.

RF Level Check

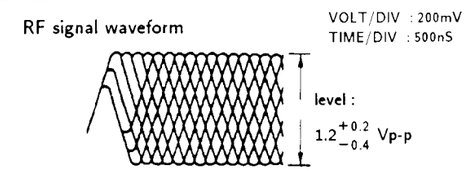


Procedure :

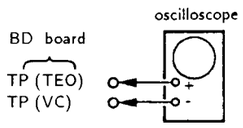
1. Connect oscilloscope to test point TP (RF) on BD board.
2. Turn Power switch on.
3. Put disc (YEDS-18) in and playback.
4. Confirm that oscilloscope waveform is clear and check RF signal level is correct or not.

Note :

Clear RF signal waveform means that the shape "◇" can be clearly distinguished at the center of the waveform.

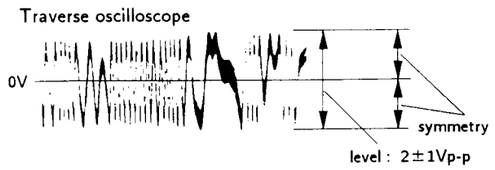


E-F Balance Check



Procedure :

1. Connect test point TP (ADJ) to ground and TP (TES) to TP (VC) with lead wire.
2. Connect oscilloscope to test point TP (TEO) on BD board.
3. Turn Power switch on.
4. Put disc (YEDS-18) in and playback.
5. Confirm that the osilloscope waveform is symmetrical on the top and bottom in relation to 0V, and check this level.

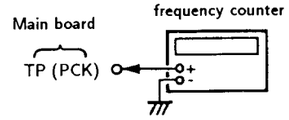


6. Remove the lead wire connected in step 1.

RF PLL Free-run Frequency Check

Procedure :

1. Connect frequency counter to test point (PCK) with lead wire.

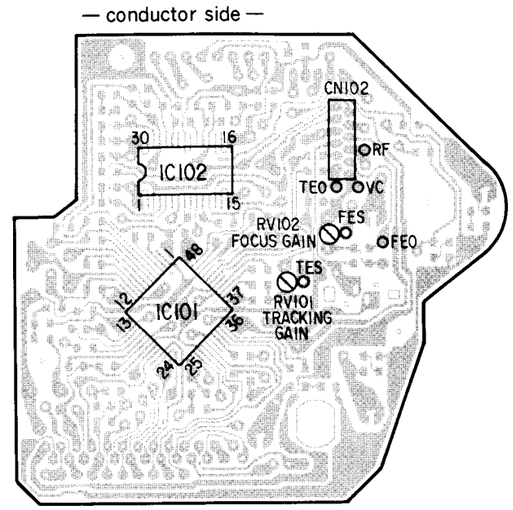


2. Turn Power switch on.
3. Confirm that reading on frequency counter is 4. 3218MHz.

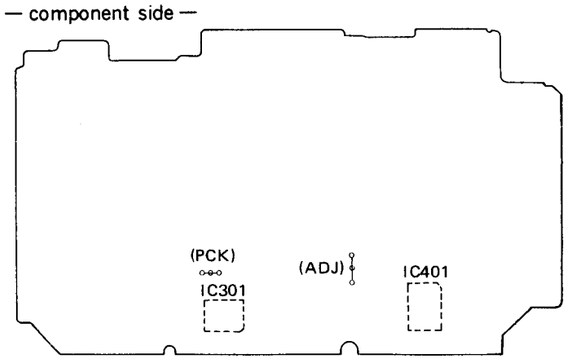
Focus/Tracking Gain

This gain has a margin, so even if it is slightly off. There is no problem.
Therefore, do not perform, this adjustment.
Please note that it should be fixed to mechanical center position when you moved and do not know original position.

Adjustment Locations :
【BD board】

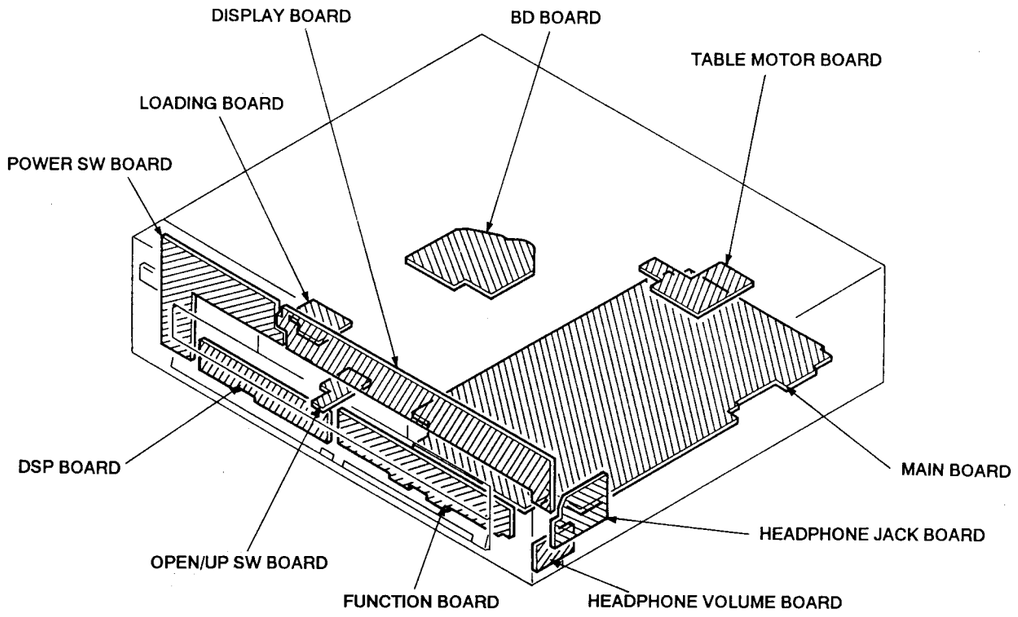


【Main board】



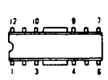
SECTION 5
DIAGRAMS

1. CIRCUIT BOARDS LOCATION

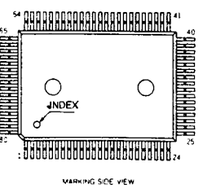


2. SEMICONDUCTOR LEAD LAYOUTS

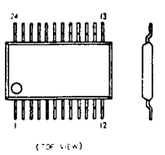
CXA1291P

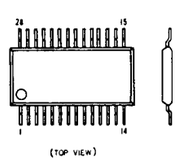


CXD2500AQ
CXP50116-233Q

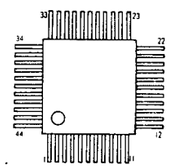


CXD2560M

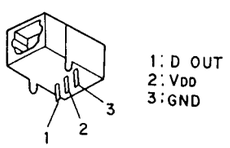


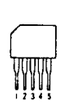


CXD2701Q

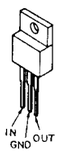


GP1F31T

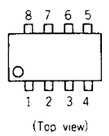


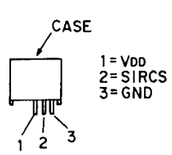


M5F7807L

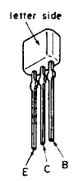


RC4556D
RC5532DD

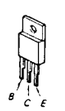


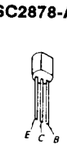


2SA1175-HFE



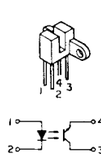
2SB1094-L



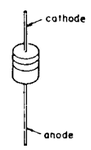


2SC3623-LK
DTA124ES
DTA144ES
DTC144ES

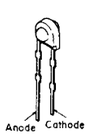
2SD774-34

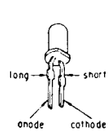


11EQS04
11ES2
1SS120
RD5.6ES-B2
RD6.8ES-B2



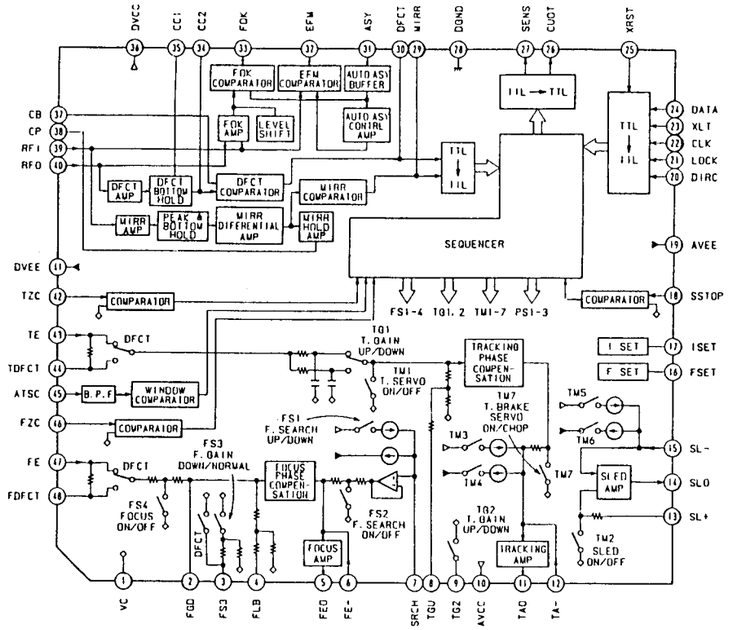
BR4361F



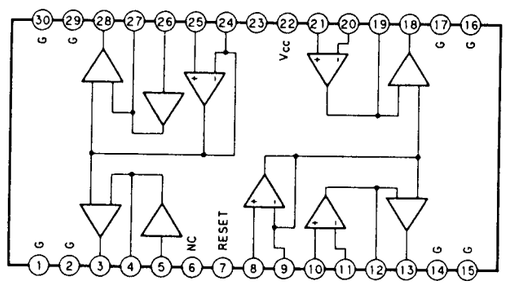


5-3. IC BLOCK DIAGRAMS

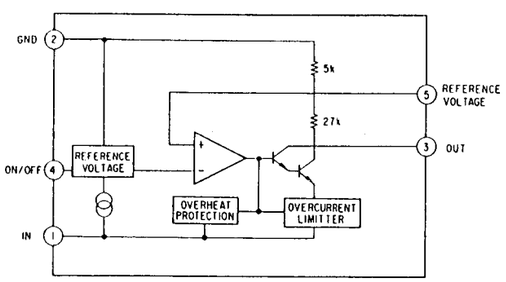
IC101 CXA1372Q



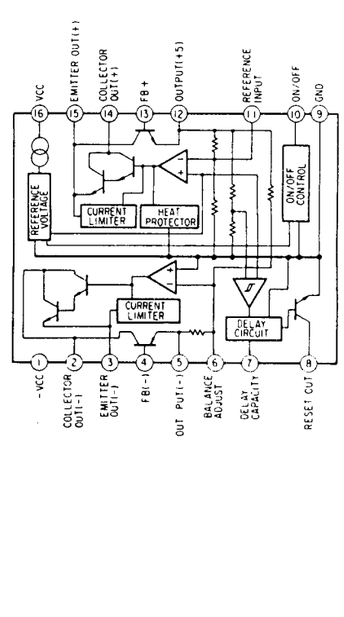
IC102 LA6532M



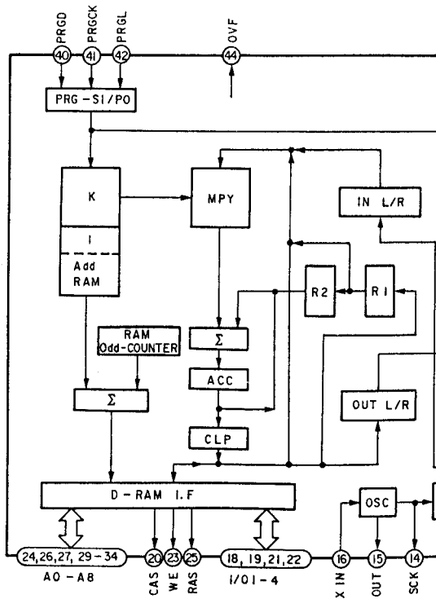
IC201 M5293L



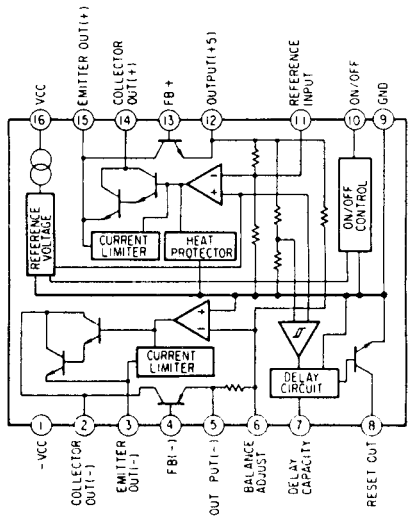
IC202 M5290P-16



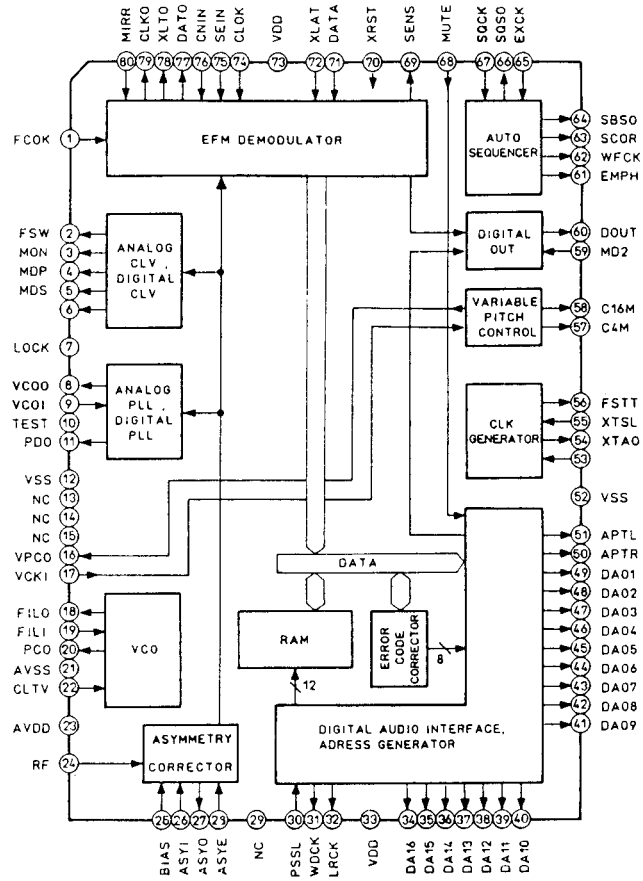
IC901 CXD2701Q



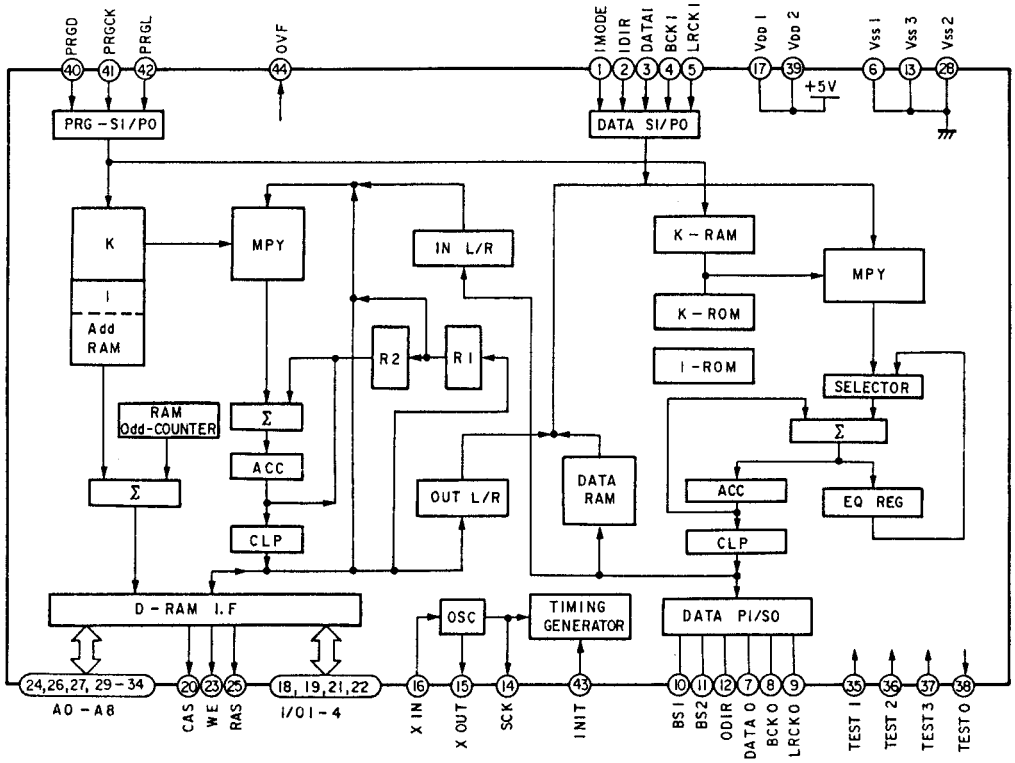
IC202 M5290P-16



IC301 CXD2500Q



IC901 CXD2701Q



5-4. PRINTED WIRING BOARDS

- **Refer to page 11 for Semiconductor Lead Layouts.**

- **Semiconductor Location**

Ref. No.	Location
D201	H-26
D202	G-26
D203	D-25
D204	D-25
D205	E-25
D206	D-25
D208	D-18
D209	D-18
D341	G-22
D351	G-21
D601	C-4
D701	I-32
D801	F-7
D802	F-6
D803	F-5
D804	F-5
D805	F-4
IC101	E-30
IC102	D-30
IC201	H-26
IC202	F-25
IC203	F-22
IC204	G-25
IC301	I-23
IC302	H-24
IC303	G-23
IC306	F-20
IC307	F-20
IC308	H-27
IC309	D-19
IC401	I-18
IC402	G-17
IC551	H-13
IC901	J-24
IC902	I-26
IC903	J-20
IC904	I-26
IC910	F-19
Q101	F-31
Q201	G-26
Q202	F-24
Q203	E-23
Q204	G-24
Q205	F-24
Q206	F-24
Q209	E-22
Q341	F-16
Q342	F-16
Q343	G-16
Q344	G-20
Q371	G-17
Q372	F-17
Q373	G-17
Q374	F-17
Q375	F-17
Q376	F-17
Q401	H-17
Q901	G-20
Q902	G-19
Q903	G-19
Q941	F-19
Q942	F-18
Q943	F-18
Q971	F-19
Q972	F-18
Q973	F-18

Note:

- ○—— : parts extracted from the component side.
- ● : Through hole.
- ▒▒ : Pattern on the side which is seen.
- ▒▒ : Pattern of the rear side.

【HEADPHONE VOL BOARD】

【HEADPHONE JACK BOARD】

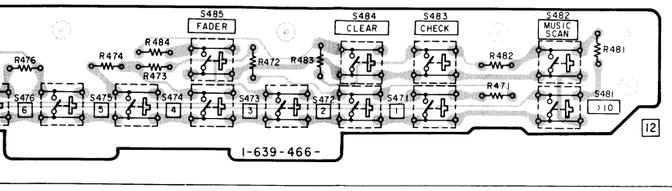
【FUNCTION BOARD】

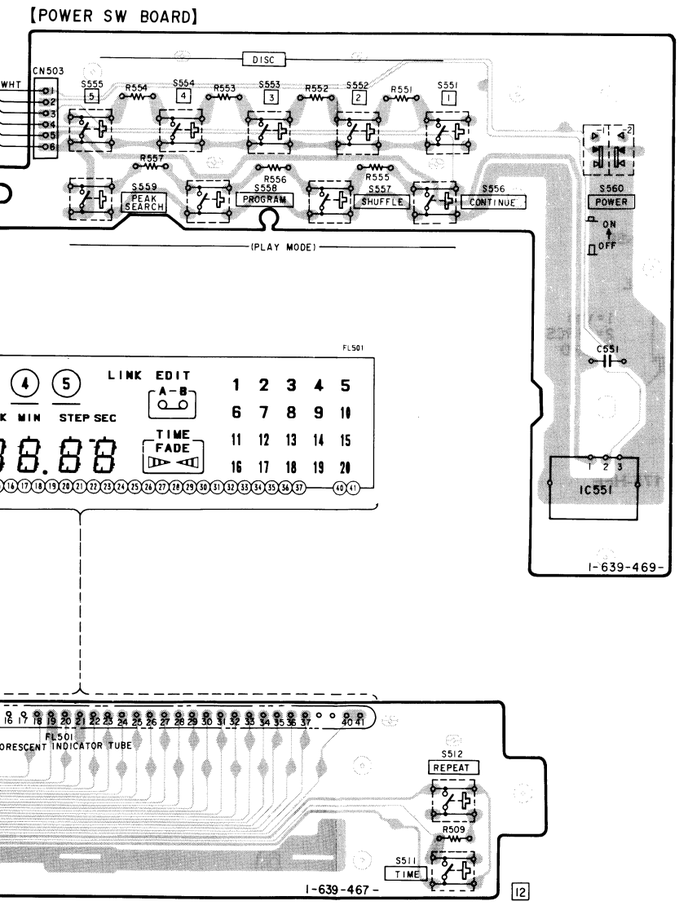
【DSP BOARD】

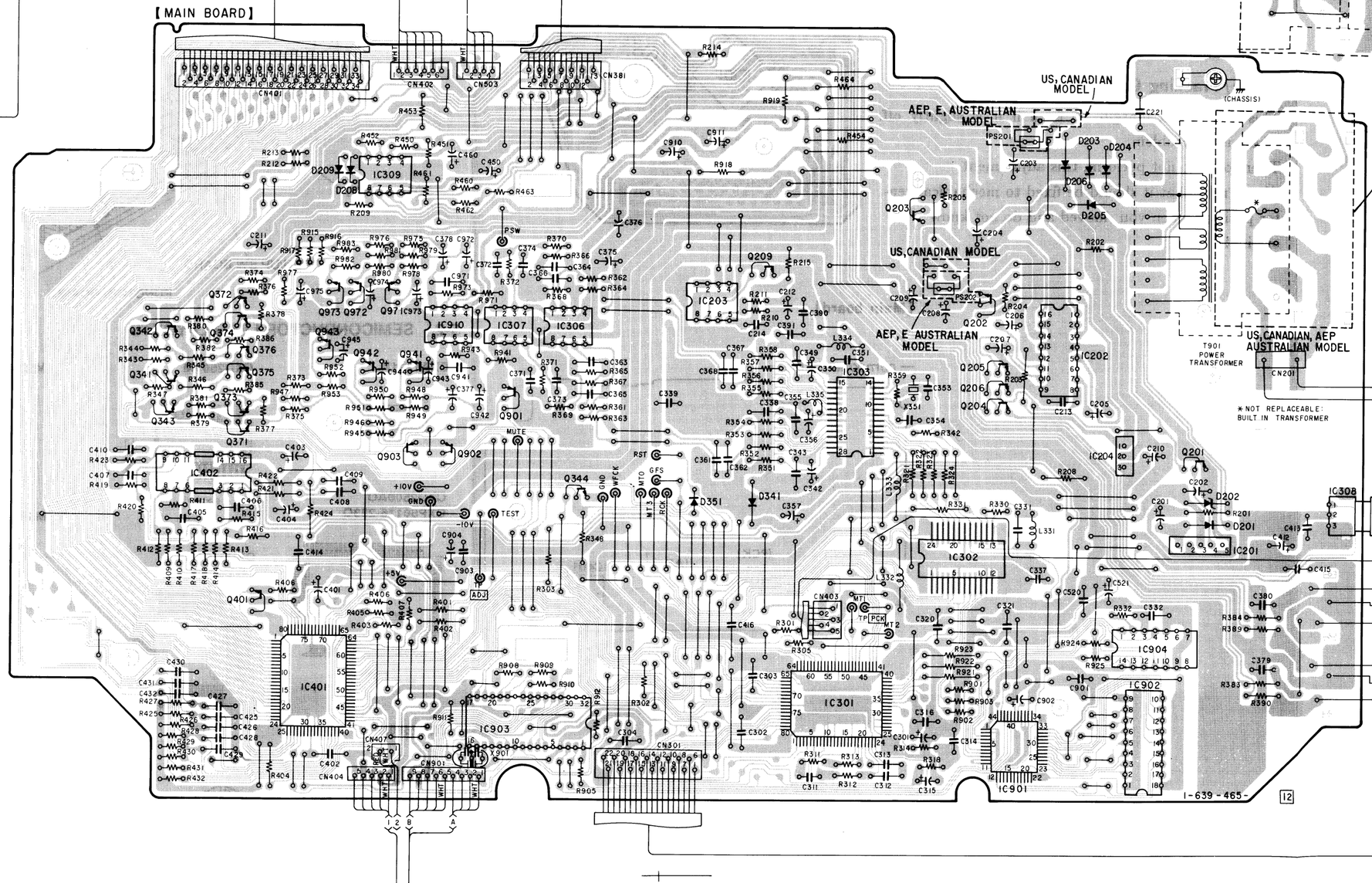
【POWER SW BOARD】

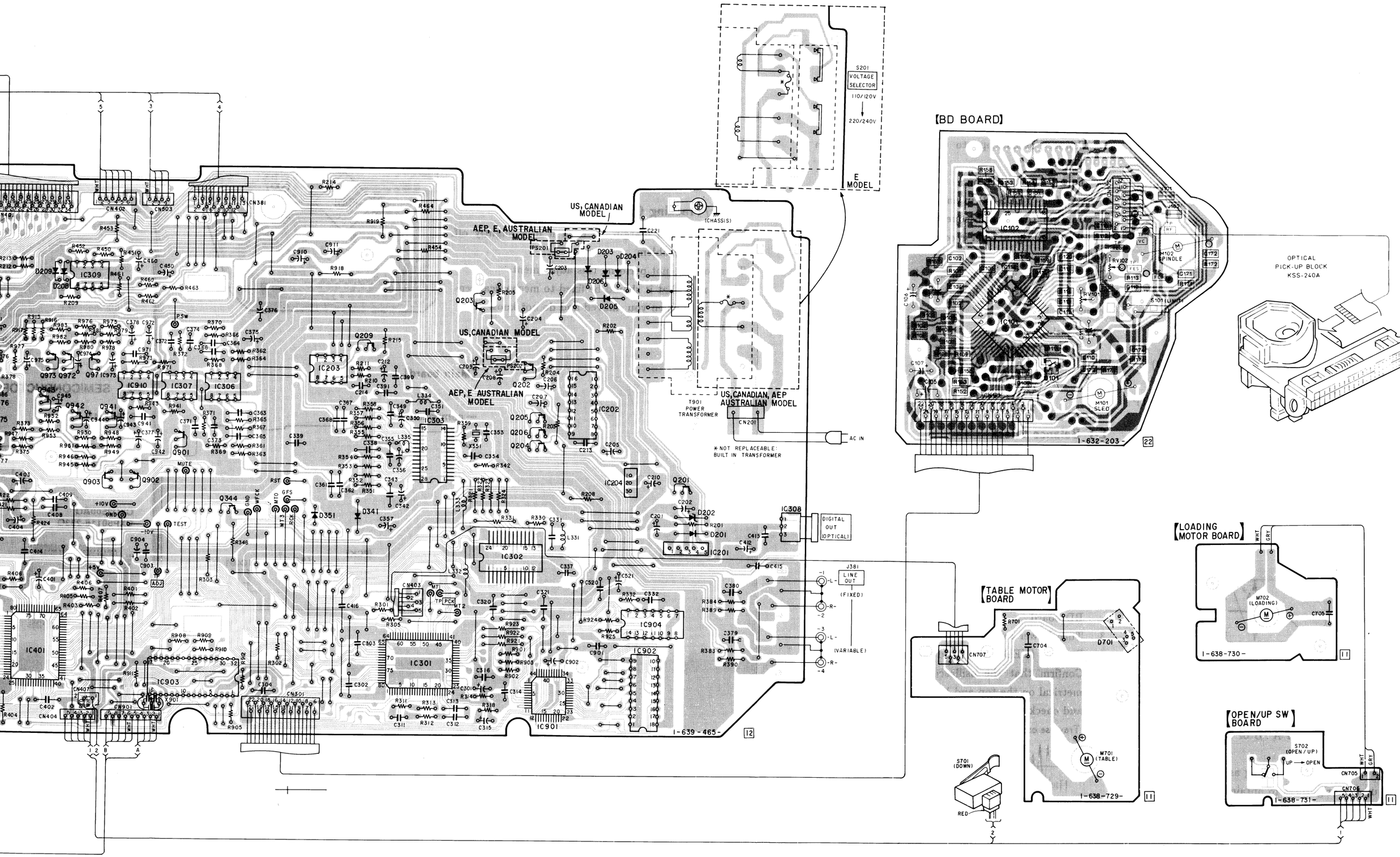
【DISPLAY BOARD】

FL501 FLUORESCENT INDICATOR TUBE


S485 FADER
S484 CLEAR
S483 CHECK
S482 MUSIC SCAN
R476
R474
R484
R473
R472
R483
R482
R471
R481
S476
S475
S474
S473
S472
S471
S481
>10
12
I-639-466-


【POWER SW BOARD】
CN503
WHT
S555
S554
S553
S552
S551
R554
R553
R552
R551
DISC
R557
S559 PEAK SEARCH
S558 PROGRAM
R556
R555
S557 SHUFFLE
S556 CONTINUE
S560 POWER
ON
OFF
(PLAY MODE)
FL501
LINK EDIT
A-B
TIME FADE
STEP SEC
1 2 3 4 5
6 7 8 9 10
11 12 13 14 15
16 17 18 19 20
FL501
ORESCENT INDICATOR TUBE
S512 REPEAT
R509
S511 TIME
C551
IC551
I-639-469-
I-639-467-
12


【MAIN BOARD】
CN401
CN402
CN503
CN381
WHT
IC309
IC940
IC307
IC306
IC203
IC303
IC202
IC204
IC402
IC401
IC903
IC301
IC302
IC904
IC902
IC901
IC201
IC308
Q209
Q202
Q205
Q206
Q204
Q201
Q203
Q372
Q342
Q343
Q374
Q376
Q375
Q373
Q371
Q943
Q945
Q942
Q941
Q973
Q972
Q971
Q901
Q902
Q903
Q344
Q401
D209
D208
D203
D204
D206
D205
D202
D201
D351
D341
PS201
PS202
T901 POWER TRANSFORMER
US, CANADIAN MODEL
AEP, E AUSTRALIAN MODEL
US, CANADIAN, AEP AUSTRALIAN MODEL
(CHASSIS)
CN201
* NOT REPLACEABLE: BUILT IN TRANSFORMER
MUTE
RST
TEST
ADJ
PSW
+10V
GND
-10V
+5V
I-639-465-
12



【BD BOARD】

【LOADING MOTOR BOARD】

【TABLE MOTOR BOARD】

【OPEN/UP SW BOARD】

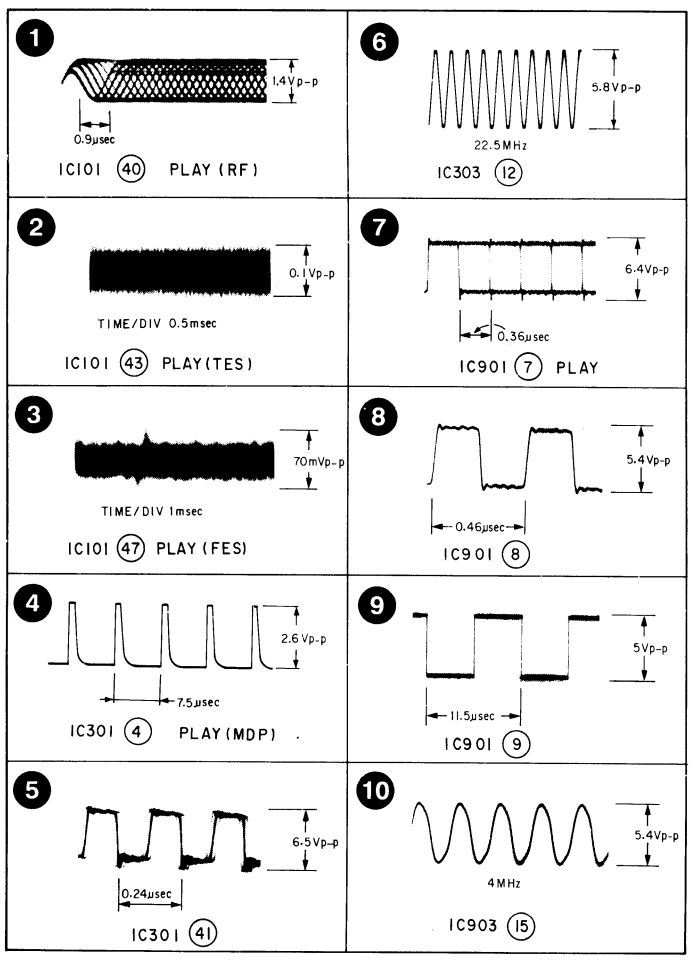
S701 (DOWN)

Note:

- All capacitors are in μF unless otherwise noted. pF: μμF. 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4W or less unless otherwise specified.

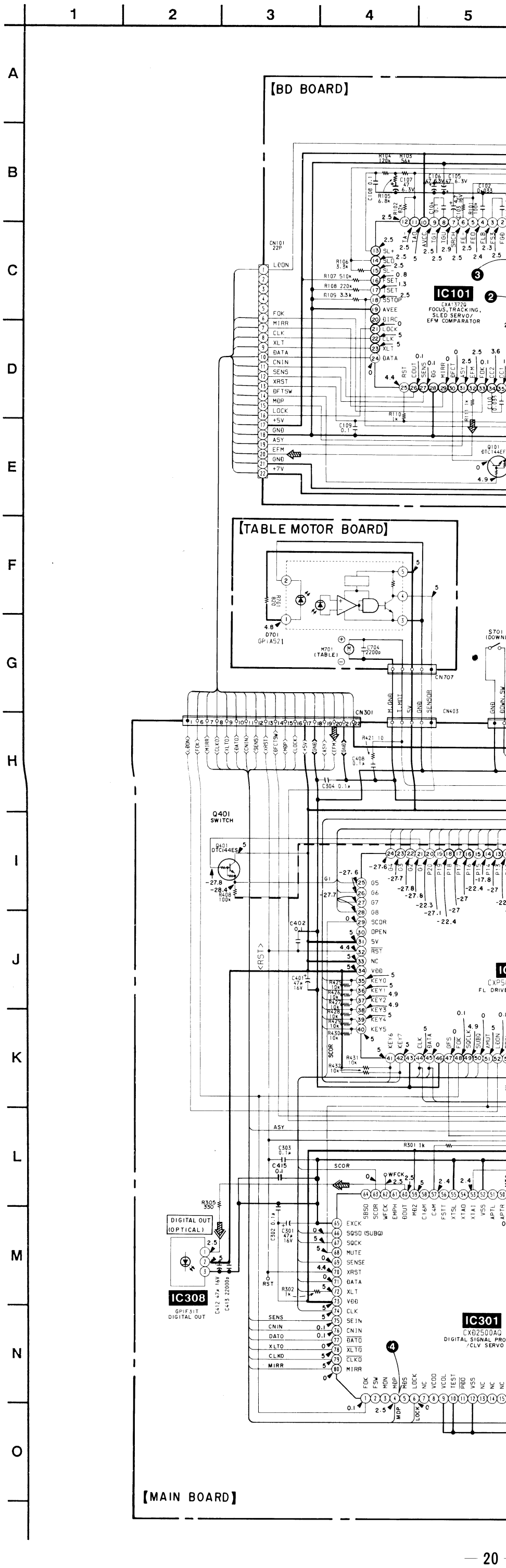
Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safty. Replace only with part number specified.	**Note:** Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une piéce portant le numéro spécifié.

- ▬▬ : B+ Line.
- ▬ ▬ ▬ : B– Line.
- ▭ : adjustment for repeair.
- △ : internal component.
- Voltage and waveforms are dc with respect to ground under no-signal conditions.
- Voltage are taken with a VOM (Input Impedance 10M Ω) Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope. Voltage variations may be noted due to normal production tolerances.
- Circled numbers refer to waveforms.
- Signal path.
  ⇨ : CD ⇛ : digital out



5-5. SCHEMATIC DIAGRAM

- **Refer to page 12 for IC BLOCK Diagrams.**



4 5 6 7 8 9 10 11 12 13 14 15

BOARD]

IC101
CXA1372Q
FOCUS, TRACKING, SLED SERVO/ EFM COMPARATOR

IC102
LA6532M-T1
FOCUS, TRACKING COIL DRIVE SLED, SPINDLE MOTOR DRIVE

OPTICAL PICK-UP BLOCK (KSS-240A)

FOCUS COIL
TRACKING COIL
IC M52103FP DETECTOR/RF AMP

CN102

TRACKING GAIN
FOCUS GAIN

M102 (SPINDLE)
M101 (SLED)

Q101 DTC144EF SWITCHING

S101 (LIMIT)

[POWER SW BOARD]

DISC
S551 S552 S553 S554 S555
S556 CONTINUE
S557 SHUFFLE
S558 PROGRAM
S559 PEAK SEARCH
S560 POWER OFF ON
CN503
+5V K3 IK SIRCS SW
C551 0.022

IC551
SBX1610-59
REMOCON DETECTOR

[DISPLA

MOTOR BOARD]

M701 (TABLE)
CN707
S701 (DOWN)

[OPEN/UP SW BOARD]
S702 (OPEN/UP) UP→OPEN
CN705
CN704

[LOADING MOTOR BOARD]
M702 (LOADING)

[FUNCTION BOARD]
S471 S472 S473 S474 S475 S476 S477 S478 S479 S480 S481 S482 S483 S484 S485
CN502

CN301 CN403 CN407 CN404 CN402 CN503 CN901 CN401

IC401
CXP50116-213Q
FL DRIVE/SYSTEM CONTROL

IC402
CXA1291P
TABLE, LOADING, VOL MOTOR DRIVE

IC903
DSP CONTROLLER, LED DRIVE
X901 4MHz

IC302
CXD2560M
DIGITAL FILTER

IC301
CXD2500AQ
DIGITAL SIGNAL PROCESSOR /CLV SERVO

IC901
PROGRAMMABLE DIGITAL SIGNAL PROCESSOR, EQUALIZER

IC902
D-RAM

IC901
0.9CXD2701

IC904
INITIAL RESET, INVERTER
TC74HCU04P

Q204,205
POWER ON/OFF CONTROL

Q206
RESET

Q209
+5V REG

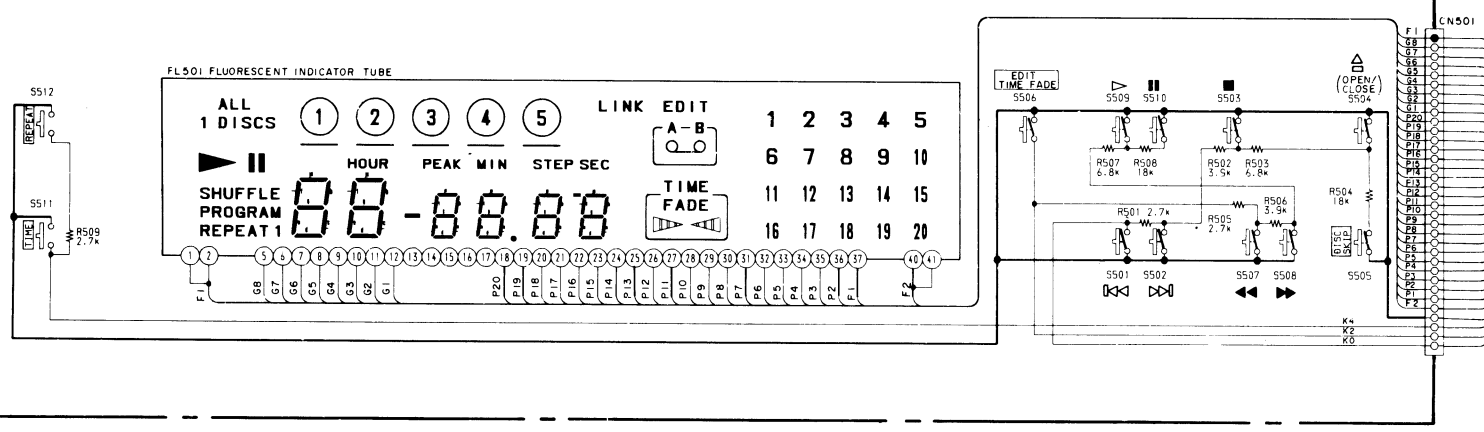
IC203
REF VOLTAGE

IC202
+5V/-5V REG
US, CANADIAN
<+10V>

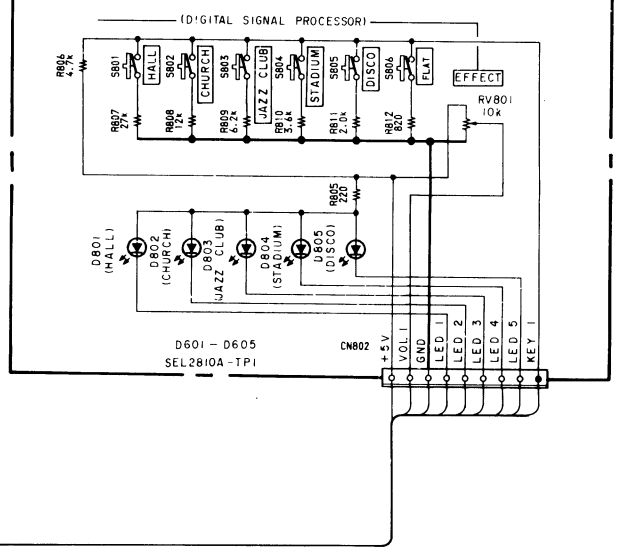
IC204
M5F7807L
+7V REG
AEP, E, AUSTRALIAN MODEL
<-10V>

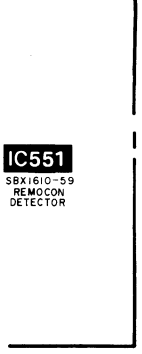
13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24

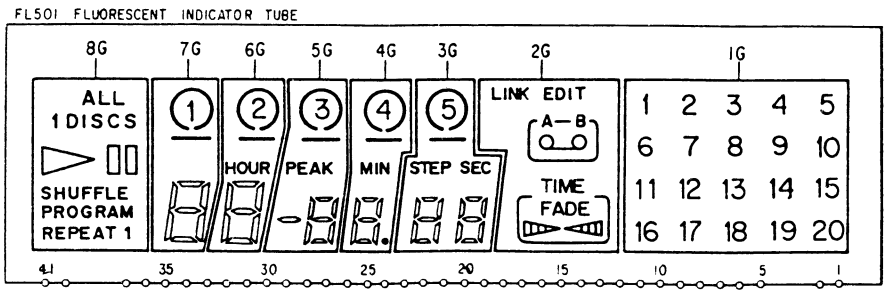
【DISPLAY BOARD】

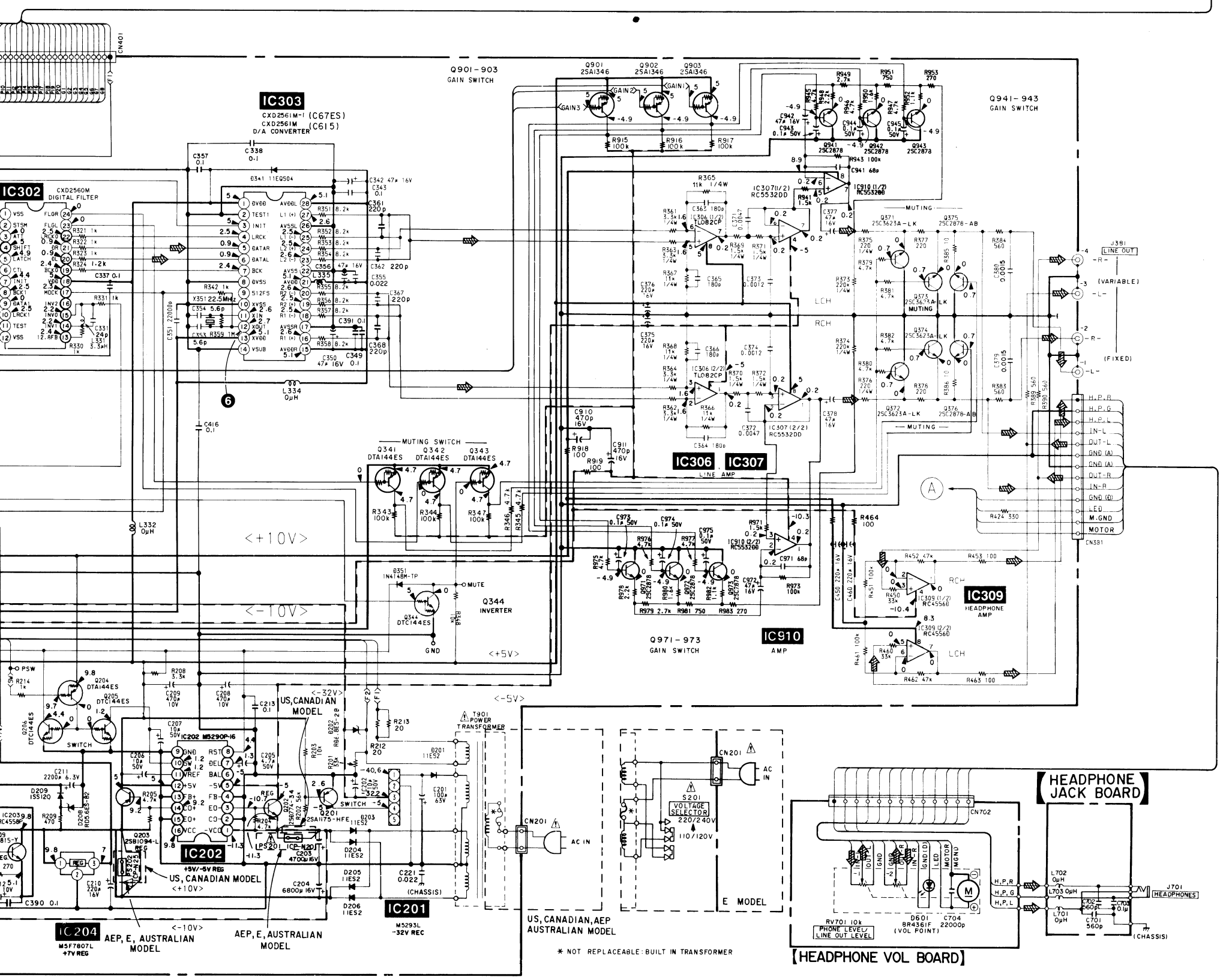


【DSP BOARD】









EXPLODED VIEWS

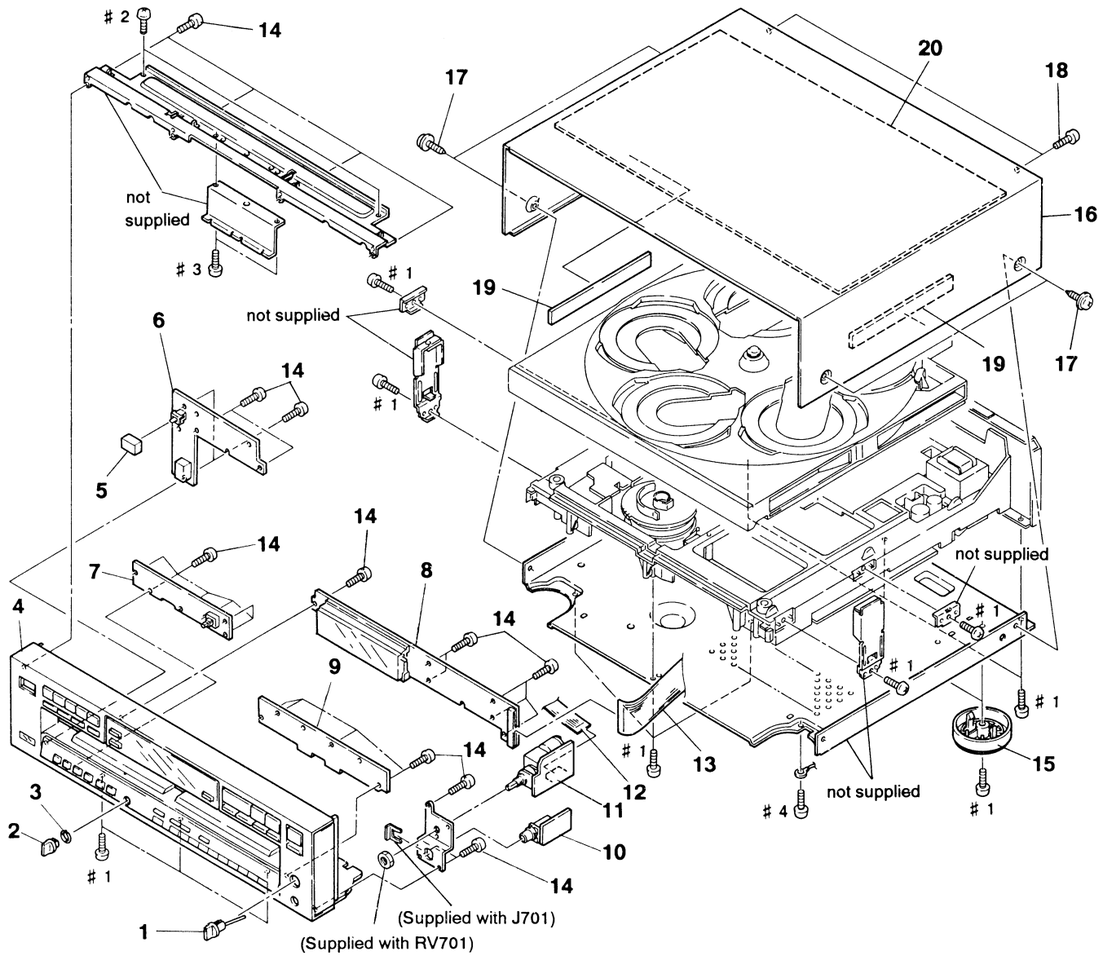
NOTE:

- -XX, -X mean standardized parts, so they may have some difference from the original one.
- Color Indication of Appearance Parts
  Example:
  KNOB, BALANCE (WHITE)...(RED)
  ↑ ↑
  Parts color Cabinet's color
- Items marked " * " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.
- Hardware (# mark) list is given in the last of this parts list.

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

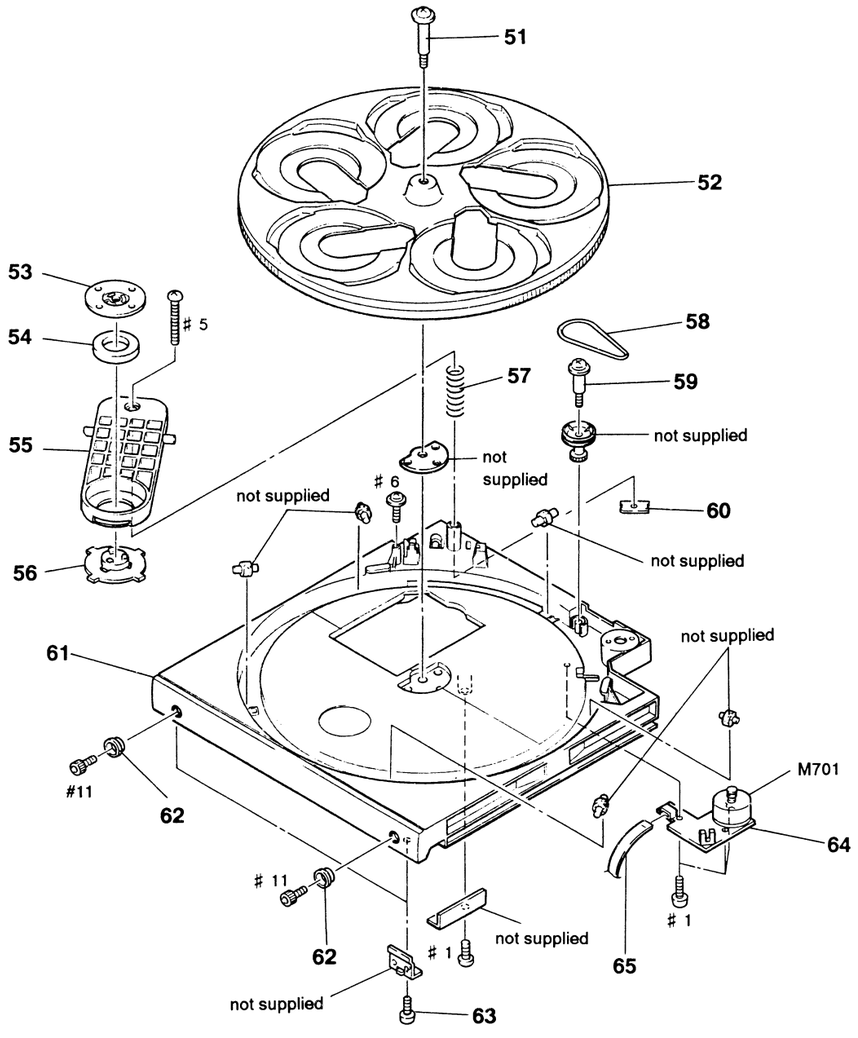
Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

6-1. FRONT PANEL AND CASE ASSEMBLIES



Ref. No.	Part No.	Description	Remark
1	A-4675-298-A	KNOB (HP) ASSY	
2	4-944-154-02	KNOB (DSP)	
3	3-354-981-01	SPRING (SUS), RING	
4	X-4941-484-2	PANEL ASSY, FRONT (C615:US, Canadian)	
4	X-4941-486-2	PANEL ASSY, FRONT (C67ES)	
4	X-4941-485-2	PANEL ASSY, FRONT (AEP, E, Australian)	
5	4-922-921-01	BUTTON (POWER)	
6	* 1-639-469-11	POWER SW BOARD	
7	* 1-639-468-11	DSP BOARD	
8	* 1-639-467-11	DISPLAY BOARD	
9	* 1-639-466-11	FUNCTION BOARD	
10	* 1-639-471-11	HEADPHONE JACK BOARD	
11	* 1-639-470-11	HEADPHONE VOLUME BOARD	
12	1-590-834-11	WIRE, FLAT TYPE (13 CORE)	
13	1-590-835-11	WIRE, FLAT TYPE (34 CORE)	
14	4-928-635-01	SCREW, +BV (2.6X8) TAPPING	
15	X-4924-463-1	FOOT ASSY (C67ES) (C615:AEP, E, Australian)	
15	X-4924-464-1	FOOT ASSY (C615:US, Canadian)	
16	* 4-944-153-01	CASE	
17	3-704-366-01	SCREW (CASE) (M3X8)	
18	3-703-685-21	SCREW (+BV 3X8)	
19	* 4-929-561-01	CUSHION (CASE)	
20	A-4675-309-A	REINFORCEMENT (TOP PLATE) ASSY (C67ES)	

6-2. DISC TRAY ASSEMBLY



Ref. No.	Part No.	Description	Remark
51	4-926-384-01	SCREW, STEP	
52	* 4-926-383-01	TABLE (B), DISK (C615)	
52	4-926-383-11	TABLE (B), DISK (C67ES)	
53	4-921-029-01	YOKE, CHUCKING	
54	1-452-340-21	MAGNET	
55	* 4-930-506-02	BRACKET (PRESS PULLEY)	
56	4-921-022-01	PULLEY, CHUCKING	
57	4-926-395-01	SPRING, COMPRESSION	
58	4-926-399-01	BELT	
59	4-923-597-01	SCREW, STEP	
60	* 4-926-388-01	BRACKET (ADJUSTMENT)	
61	4-944-160-01	TABLE (A), DISC (C615)	
61	4-944-161-01	TABLE (A), DISK (C67ES)	
62	4-934-307-01	ESCUTCHEON (C67ES)	
63	4-928-635-01	SCREW, +BV (2.6X8) TAPPING (C67ES)	
64	* 1-638-729-11	TABLE MOTOR BOARD	
65	1-590-849-11	WIRE, FLAT TYPE (5 CORE)	
M701	A-4604-585-A	MOTOR ASSY, ROTARY (TABLE)	

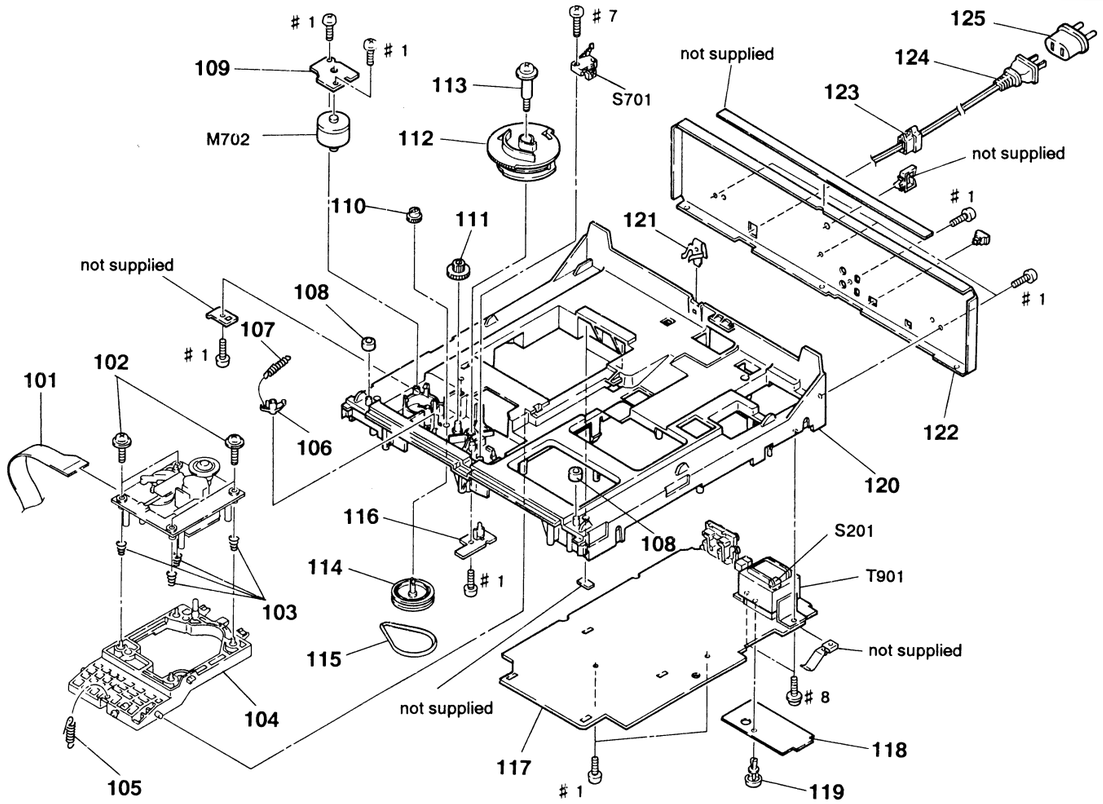
6-3. CHA

Ref. No.	P
101	
102	4
103	4
104	* 4
105	4
106	4
107	4
108	* 4
109	* 1
110	4
111	4
112	4
113	4
114	X
115	4
116	* 1
117	* A
117	* A
117	* A
117	* A
118	* 4
119	3
120	* 4
121	* 4

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

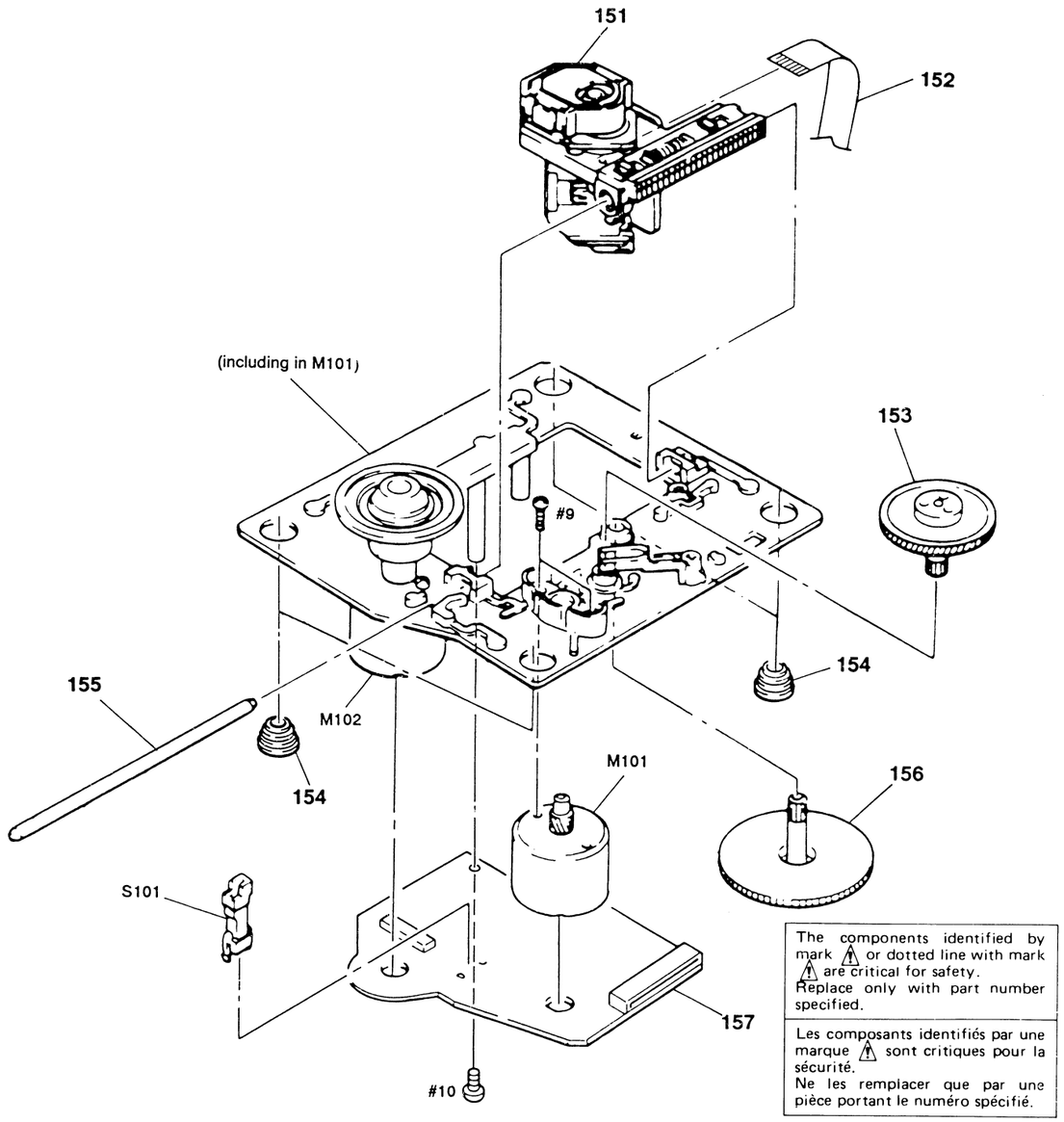
Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

6-3. CHASSIS ASSEMBLY



Ref. No.	Part No.	Description	Remark
101	1-535-892-11	JUMPER, FILM (WITH TERMINAL)	
102	4-933-134-01	SCREW (+PTPWH M2.6X6)	
103	4-917-541-01	SPRING (B)	
104	* 4-934-373-01	BRACKET (BU)	
105	4-937-911-01	SPRING, TENSION	
106	4-917-519-01	LEVER, SET	
107	4-924-412-01	SPRING (B), TENSION	
108	* 4-934-382-01	CUSHION	
109	* 1-638-730-11	LOADING MOTOR BOARD	
110	4-934-375-01	GEAR (LOADING B)	
111	4-934-381-01	GEAR (LOADING C)	
112	4-934-391-01	GEAR (LOADING A)	
113	4-926-317-01	SCREW, STEP	
114	X-4941-529-1	PULLEY ASSY	
115	4-944-490-01	BELT (TIMING)	
116	* 1-638-731-11	OPEN/UP SW BOARD	
117	* A-4617-851-A	MAIN BOARD, COMPLETE (AEP, Australian)	
117	* A-4617-842-A	MAIN BOARD, COMPLETE (C67ES)	
117	* A-4617-843-A	MAIN BOARD, COMPLETE (C615:US, Canadian)	
117	* A-4617-853-A	MAIN BOARD, COMPLETE (E)	
118	* 4-944-178-01	SHEET (INSULATING)	
119	3-531-576-11	RIVET	
120	* 4-943-997-01	CHASSIS	
121	* 4-943-996-01	SPRING, LEAF	
122	* 4-943-680-21	PANEL, BACK (C67ES)	
122	* 4-943-680-31	PANEL, BACK (C615:US)	
122	* 4-943-680-41	PANEL, BACK (Canadian)	
122	* 4-943-680-51	PANEL, BACK (AEP)	
122	* 4-943-680-61	PANEL, BACK (Australian)	
122	* 4-943-680-71	PANEL, BACK (E)	
123	* 3-703-244-00	BUSHING (2104), CORD (EXCEPT E)	
123	* 3-703-571-11	BUSHING (S) (4516), CORD (E)	
124	⚠ 1-574-358-31	CORD, POWER (WITH CONNECTOR) (Australian)	
124	⚠ 1-575-651-21	CORD, POWER (AEP)	
124	⚠ 1-575-653-21	CORD, POWER (E)	
124	⚠ 1-590-836-11	CORD, POWER (US, Canadian)	
125	⚠ 1-569-007-11	ADAPTOR, CONVERSION 2P (E)	
M702	A-4604-834-A	MOTOR ASSY, LOADING	
S201	⚠ 1-571-722-11	SWITCH, VOLTAGE SELECTION (E)	
S701	1-572-713-11	SWITCH, PUSH (WITH CONNECTOR) (DOWN)	
T901	⚠ 1-450-133-11	TRANSFORMER, POWER (US, Canadian)	
T901	⚠ 1-450-134-11	TRANSFORMER, POWER (AEP, Australian)	
T901	⚠ 1-450-135-11	TRANSFORMER, POWER (E)	

6-4. OPTICAL PICK-UP BLOCK ASSEMBLY (BU-5BD3)



The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

Ref. No.	Part No.	Description	Remark
151	⚠ 8-848-144-11	DEVICE, OPTICAL KSS-240A	
152	1-575-001-11	WIRE, FLAT TYPE (12 CORE)	
153	4-917-567-01	GEAR (M)	
154	4-933-126-01	INSULATOR (A)	
155	4-917-565-01	SHAFT, SLED	
156	4-917-564-01	GEAR (P), FLATNESS	
157	* A-4617-371-A	BD BOARD, COMPLETE	
M101	X-4917-504-1	MOTOR ASSY (SLED)	
M102	X-4917-523-3	MOTOR ASSY (SPINDLE)	
S101	1-572-085-11	SWITCH, LEAF (LIMIT IN)	

SECTION 7
ELECTRICAL PARTS LIST

BD

NOTE:

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifé.

When indicating parts by reference number, please include the board name.

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX, -X mean standardized parts, so they may have some difference from the original one.
- RESISTORS
  All resistors are in ohms
  METAL: Metal-film resistor
  METAL OXIDE: Metal Oxide-film resistor
  F : nonflammable
- Items marked "* " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- SEMICONDUCTORS
  In each case, u: μ , for example:
  uA...: μA..., uPA...: μPA...,
  uPB...: μPB..., uPC...: μPC...,
  uPD...: μPD...
- CAPACITORS
  uF : μF
- COILS
  uH : μH

Ref. No.	Part No.	Description			Remark
*	A-4617-371-A	BD BOARD, COMPLETE			
		**********			
		< CAPACITOR >			
C101	1-163-038-00	CERAMIC CHIP	0.1uF	25V	
C102	1-163-989-11	CERAMIC CHIP	0.033uF	10% 25V	
C103	1-126-163-11	ELECT	4.7uF	20% 50V	
C104	1-163-038-00	CERAMIC CHIP	0.1uF	25V	
C105	1-126-154-11	ELECT	47uF	20% 6.3V	
C106	1-126-154-11	ELECT	47uF	20% 6.3V	
C107	1-126-154-11	ELECT	47uF	20% 6.3V	
C108	1-163-038-00	CERAMIC CHIP	0.1uF	25V	
C109	1-163-038-00	CERAMIC CHIP	0.1uF	25V	
C110	1-163-989-11	CERAMIC CHIP	0.033uF	10% 25V	
C111	1-131-367-00	TANTALUM	22uF	10% 20V	
C112	1-164-232-11	CERAMIC CHIP	0.01uF	50V	
C113	1-164-232-11	CERAMIC CHIP	0.01uF	50V	
C114	1-164-161-11	CERAMIC CHIP	0.0022uF	10% 100V	
C115	1-164-161-11	CERAMIC CHIP	0.0022uF	10% 100V	
C117	1-163-038-00	CERAMIC CHIP	0.1uF	25V	
C118	1-163-038-00	CERAMIC CHIP	0.1uF	25V	
C119	1-164-161-11	CERAMIC CHIP	0.0022uF	10% 100V	
C120	1-163-989-11	CERAMIC CHIP	0.033uF	10% 25V	
C151	1-163-019-00	CERAMIC CHIP	0.0068uF	10% 50V	
C152	1-163-038-00	CERAMIC CHIP	0.1uF	25V	
C153	1-163-006-11	CERAMIC CHIP	560PF	10% 50V	
C154	1-164-161-11	CERAMIC CHIP	0.0022uF	10% 100V	
C155	1-163-023-00	CERAMIC CHIP	0.015uF	5% 50V	
C171	1-163-038-00	CERAMIC CHIP	0.1uF	25V	
C172	1-163-038-00	CERAMIC CHIP	0.1uF	25V	
C173	1-163-038-00	CERAMIC CHIP	0.1uF	25V	
C174	1-163-038-00	CERAMIC CHIP	0.1uF	25V	

Ref. No.	Part No.	Description			Remark
		< CONNECTOR >			
CN101	1-568-736-11	SOCKET, CONNECTOR 22P			
CN102	1-568-795-11	SOCKET, CONNECTOR 12P			
		< IC >			
IC101	8-752-050-82	IC CXA1372Q			
IC102	8-759-822-36	IC LA6532M			
		< JUNPER >			
J101	1-216-295-00	METAL CHIP	0	5% 1/10W	
J102	1-216-295-00	METAL CHIP	0	5% 1/10W	
		< TRANSISTOR >			
Q101	8-729-901-01	TRANSISTOR DTC144EK			
		< RESISTOR >			
R101	1-216-097-00	METAL CHIP	100K	5% 1/10W	
R102	1-216-095-00	METAL CHIP	82K	5% 1/10W	
R103	1-216-091-00	METAL CHIP	56K	5% 1/10W	
R104	1-216-099-00	METAL CHIP	120K	5% 1/10W	
R105	1-216-069-00	METAL CHIP	6.8K	5% 1/10W	
R106	1-216-061-00	METAL CHIP	3.3K	5% 1/10W	
R107	1-216-114-00	METAL GLAZE	510K	5% 1/10W	
R108	1-216-105-00	METAL CHIP	220K	5% 1/10W	
R109	1-216-061-00	METAL CHIP	3.3K	5% 1/10W	
R110	1-216-049-00	METAL CHIP	1K	5% 1/10W	
R111	1-216-049-00	METAL CHIP	1K	5% 1/10W	
R112	1-216-083-00	METAL CHIP	27K	5% 1/10W	
R113	1-216-071-00	METAL CHIP	8.2K	5% 1/10W	
R114	1-216-105-00	METAL CHIP	220K	5% 1/10W	
R152	1-216-073-00	METAL CHIP	10K	5% 1/10W	

MC-Service

BD MAIN FUNCTION DISPLAY DSP

Ref. No.	Part No.	Description			Remark
R153	1-216-085-00	METAL CHIP	33K	5%	1/10W
R154	1-216-085-00	METAL CHIP	33K	5%	1/10W
R155	1-216-093-00	METAL CHIP	68K	5%	1/10W
R156	1-216-081-00	METAL CHIP	22K	5%	1/10W
R157	1-216-079-00	METAL CHIP	18K	5%	1/10W
R158	1-216-079-00	METAL CHIP	18K	5%	1/10W
R159	1-216-079-00	METAL CHIP	18K	5%	1/10W
R160	1-216-049-00	METAL CHIP	1K	5%	1/10W
R171	1-216-001-00	METAL CHIP	10	5%	1/10W
R172	1-216-001-00	METAL CHIP	10	5%	1/10W
R173	1-216-001-00	METAL CHIP	10	5%	1/10W
R174	1-216-001-00	METAL CHIP	10	5%	1/10W
		< VARIABLE RESISTOR >			
RV101	1-238-016-11	RES, ADJ, CARBON 10K			
RV102	1-238-016-11	RES, ADJ, CARBON 10K			
		< SWITCH >			
S101	1-572-085-11	SWITCH, LEAF (LIMIT)			
		**********			
	* A-4617-842-A	MAIN BOARD, COMPLETE (C67ES)			
	* A-4617-843-A	MAIN BOARD, COMPLETE (C615:US, Canadian)			
	* A-4617-851-A	MAIN BOARD, COMPLETE (AEP, Australian)			
	* A-4617-853-A	MAIN BOARD, COMPLETE (E)			
		**********			
	* 1-639-466-11	FUNCTION BOARD			
		**********			
	* 1-639-467-11	DISPLAY BOARD			
		**********			
	* 1-639-468-11	DSP BOARD			
		**********			
	* 4-363-146-21	HEAT SINK, V.OUT			
	* 4-944-156-01	HOLDER, LED			
	7-682-548-09	SCREW +BVTT 3X8 (S)			
		< CAPACITOR >			
C201	1-124-572-11	ELECT	100uF	20%	63V
C202	1-126-059-11	ELECT	10uF	20%	50V
C203	1-126-937-11	ELECT	4700uF	20%	16V
C204	1-126-017-11	ELECT	6800uF	20%	16V
C205	1-126-163-11	ELECT	4.7uF	20%	50V
C206	1-126-059-11	ELECT	10uF	20%	50V
C207	1-126-059-11	ELECT	10uF	20%	50V
C208	1-124-997-11	ELECT	470uF	20%	10V
C209	1-124-997-11	ELECT	470uF	20%	10V
C210	1-126-024-11	ELECT	220uF	20%	16V

Ref. No.	Part No.	Description			Remark
C211	1-124-893-11	ELECT	2200uF	20%	10V
C212	1-124-997-11	ELECT	470uF	20%	10V
C213	1-164-159-11	CERAMIC	0.1uF		50V
C214	1-130-487-00	MYLAR	0.022uF	5%	50V
C221	1-161-494-00	CERAMIC	0.022uF		25V
C301	1-126-022-11	ELECT	47uF	20%	16V
C302	1-164-159-11	CERAMIC	0.1uF		50V
C303	1-164-159-11	CERAMIC	0.1uF		50V
C304	1-164-159-11	CERAMIC	0.1uF		50V
C311	1-130-491-00	MYLAR	0.047uF	5%	50V
C312	1-161-374-11	CERAMIC	0.0015uF	20%	50V
C313	1-161-494-00	CERAMIC	0.022uF		25V
C314	1-162-306-11	CERAMIC	0.01uF	20%	16V
C315	1-126-300-11	ELECT	0.47uF	20%	50V
C316	1-161-494-00	CERAMIC	0.022uF		25V
C320	1-164-159-11	CERAMIC	0.1uF		50V
C321	1-164-159-11	CERAMIC	0.1uF		50V
C331	1-162-208-31	CERAMIC	24PF	5%	50V
C332	1-164-159-11	CERAMIC	0.1uF		50V
C337	1-164-159-11	CERAMIC	0.1uF		50V
C338	1-164-159-11	CERAMIC	0.1uF		50V
C339	1-164-159-11	CERAMIC	0.1uF		50V
C342	1-126-022-11	ELECT	47uF	20%	16V
C343	1-164-159-11	CERAMIC	0.1uF		50V
C349	1-164-159-11	CERAMIC	0.1uF		50V
C350	1-126-022-11	ELECT	47uF	20%	16V
C351	1-161-494-00	CERAMIC	0.022uF		25V
C353	1-162-196-31	CERAMIC	5.6PF	10%	50V
C354	1-162-196-31	CERAMIC	5.6PF	10%	50V
C355	1-161-494-00	CERAMIC	0.022uF		25V
C356	1-126-022-11	ELECT	47uF	20%	16V
C357	1-124-997-11	ELECT	470uF	20%	10V
C361	1-162-286-31	CERAMIC	220PF	10%	50V
C362	1-162-286-31	CERAMIC	220PF	10%	50V
C363	1-162-285-31	CERAMIC	180PF	10%	50V
C364	1-162-285-31	CERAMIC	180PF	10%	50V
C365	1-162-285-31	CERAMIC	180PF	10%	50V
C366	1-162-285-31	CERAMIC	180PF	10%	50V
C367	1-162-286-31	CERAMIC	220PF	10%	50V
C368	1-162-286-31	CERAMIC	220PF	10%	50V
C371	1-130-479-00	MYLAR	0.0047uF	5%	50V
C372	1-130-479-00	MYLAR	0.0047uF	5%	50V
C373	1-130-472-00	MYLAR	0.0012uF	5%	50V
C374	1-130-472-00	MYLAR	0.0012uF	5%	50V
C375	1-126-024-11	ELECT	220uF	20%	16V
C376	1-126-024-11	ELECT	220uF	20%	16V
C377	1-126-022-11	ELECT	47uF	20%	16V
C378	1-126-022-11	ELECT	47uF	20%	16V
C379	1-130-473-00	MYLAR	0.0015uF	5%	50V

MAIN FUNCTION DISPLAY DSP

Ref. No.	Part No.	Description			Remark
C380	1-130-473-00	MYLAR	0.0015uF	5%	50V
C390	1-164-159-11	CERAMIC	0.1uF		50V
C391	1-164-159-11	CERAMIC	0.1uF		50V
C401	1-126-022-11	ELECT	47uF	20%	16V
C402	1-164-159-11	CERAMIC	0.1uF		50V
C403	1-126-023-11	ELECT	100uF	20%	16V
C404	1-126-023-11	ELECT	100uF	20%	16V
C405	1-162-294-31	CERAMIC	0.001uF	10%	50V
C406	1-162-294-31	CERAMIC	0.001uF	10%	50V
C407	1-162-294-31	CERAMIC	0.001uF	10%	50V
C408	1-164-159-11	CERAMIC	0.1uF		50V
C409	1-164-159-11	CERAMIC	0.1uF		50V
C410	1-164-159-11	CERAMIC	0.1uF		50V
C412	1-126-022-11	ELECT	47uF	20%	16V
C413	1-161-494-00	CERAMIC	0.022uF		25V
C414	1-161-494-00	CERAMIC	0.022uF		25V
C415	1-161-494-00	CERAMIC	0.022uF		25V
C416	1-164-159-11	CERAMIC	0.1uF		50V
C425	1-162-294-31	CERAMIC	0.001uF	10%	50V
C426	1-162-294-31	CERAMIC	0.001uF	10%	50V
C427	1-162-294-31	CERAMIC	0.001uF	10%	50V
C428	1-162-294-31	CERAMIC	0.001uF	10%	50V
C429	1-162-294-31	CERAMIC	0.001uF	10%	50V
C430	1-162-294-31	CERAMIC	0.001uF	10%	50V
C431	1-162-294-31	CERAMIC	0.001uF	10%	50V
C432	1-162-294-31	CERAMIC	0.001uF	10%	50V
C450	1-126-024-11	ELECT	220uF	20%	16V
C460	1-126-024-11	ELECT	220uF	20%	16V
C520	1-161-494-00	CERAMIC	0.022uF		25V
C521	1-126-022-11	ELECT	47uF	20%	16V
C901	1-161-494-00	CERAMIC	0.022uF		25V
C902	1-126-022-11	ELECT	47uF	20%	16V
C903	1-161-494-00	CERAMIC	0.022uF		25V
C904	1-126-022-11	ELECT	47uF	20%	16V
C910	1-126-012-11	ELECT	470uF	20%	16V
C911	1-126-012-11	ELECT	470uF	20%	16V
C941	1-162-219-31	CERAMIC	68PF	5%	50V
C942	1-126-022-11	ELECT	47uF	20%	16V
C943	1-124-463-00	ELECT	0.1uF	20%	50V
C944	1-124-463-00	ELECT	0.1uF	20%	50V
C945	1-124-463-00	ELECT	0.1uF	20%	50V
C971	1-162-219-31	CERAMIC	68PF	5%	50V
C972	1-126-022-11	ELECT	47uF	20%	16V
C973	1-124-463-00	ELECT	0.1uF	20%	50V
C974	1-124-463-00	ELECT	0.1uF	20%	50V
C975	1-124-463-00	ELECT	0.1uF	20%	50V

Ref. No.	Part No.	Description	Remark
		< CONNECTOR >	
CN201	* 1-573-047-11	PIN, CONNECTOR	
CN301	* 1-573-046-11	SOCKET, CONNECTOR 18P	
CN381	* 1-568-856-11	SOCKET, CONNECTOR 13P	
CN401	* 1-573-080-11	SOCKET, CONNECTOR (34P, L TYPE)	
CN402	* 1-568-944-11	PIN, CONNECTOR 6P	
CN403	* 1-568-824-11	SOCKET, CONNECTOR 5P	
CN404	* 1-568-943-11	PIN, CONNECTOR 5P	
CN501	* 1-573-080-11	SOCKET, CONNECTOR (34P, L TYPE)	
CN503	* 1-568-942-11	PIN, CONNECTOR 4P	
CN901	* 1-568-947-11	PIN, CONNECTOR 9P	
		< DIODE >	
D201	8-719-200-82	DIODE 11ES2	
D202	8-719-109-97	DIODE RD6.8ES-2B	
D203	8-719-200-82	DIODE 11ES2	
D204	8-719-200-82	DIODE 11ES2	
D205	8-719-200-82	DIODE 11ES2	
D206	8-719-200-82	DIODE 11ES2	
D208	8-719-109-89	DIODE RD5.6ES-B2	
D209	8-719-912-20	DIODE 1SS120	
D341	8-719-210-21	DIODE 11EQS04	
D351	8-719-912-20	DIODE 1SS120	
D801	8-719-301-52	DIODE SEL2810A-C (HALL)	
D802	8-719-301-52	DIODE SEL2810A-C (CHURCH)	
D803	8-719-301-52	DIODE SEL2810A-C (JAZZ CLUB)	
D804	8-719-301-52	DIODE SEL2810A-C (STADIUM)	
D805	8-719-301-52	DIODE SEL2810A-C (DISCO)	
		< FLUORESCENT INDICATOR >	
FL501	1-519-655-11	FLUORESCENT INDICATOR	
		< IC >	
IC201	8-759-633-42	IC M5293L	
IC202	8-759-630-21	IC M5290P-16	
IC203	8-759-945-58	IC RC4558P	
IC204	8-759-604-86	IC M5F7807L	
IC301	8-752-337-26	IC CXD2500AQ	
IC302	8-752-342-65	IC CXD2560M	
IC303	8-752-343-01	IC CXD2561M (C615)	
IC303	8-752-344-10	IC CXD2561M-1 (C67ES)	
IC306	8-759-990-82	IC TL082CP	
IC307	8-759-982-03	IC RC5532DD	
IC308	8-759-977-71	IC GP1F31T (DIGITAL OUT OPTICAL)	
IC309	8-759-981-85	IC RC4556D	
IC401	8-752-831-21	IC CXP50116-2233Q	
IC402	8-759-821-32	IC CXA-1291P	
IC901	8-752-341-99	IC CXD2701Q	

MAIN FUNCTION DISPLAY DSP

Ref. No.	Part No.	Description	Remark
IC902	8-759-973-04	IC MSM41464-10RS-K	
IC903	8-759-636-84	IC M37470M4-054SP	
IC904	8-759-917-18	IC SN74HCU04AN	
IC910	8-759-982-03	IC RC5532DD	
		< JACK >	
J381	* 1-569-443-11	JACK, PIN 4P (LINE OUT FIXED/VARIABLE) (C615)	
J381	* 1-569-443-21	JACK, PIN 4P (LINE OUT FIXED/VARIABLE) (C67ES)	
		< COIL >	
L331	1-408-403-00	INDUCTOR 3.3uH	
L332	1-412-473-21	INDUCTOR 0uH	
L333	1-412-473-21	INDUCTOR 0uH	
L334	1-412-473-21	INDUCTOR 0uH	
L335	1-412-473-21	INDUCTOR, SMALL TYPE	
		< LINK >	
PS201	⚠1-532-685-00	LINK, IC 0.8A ICP-N20 (AEP, E, Australian)	
PS202	⚠1-532-637-00	LINK, IC 1.0A ICP-N25 (AEP, E, Australian)	
		< TRANSISTOR >	
Q201	8-729-119-76	TRANSISTOR 2SA1175-HFE	
Q202	8-729-140-96	TRANSISTOR 2SD774-34	
Q203	8-729-111-67	TRANSISTOR 2SB1094-L	
Q204	8-729-900-65	TRANSISTOR DTA144ES	
Q205	8-729-900-89	TRANSISTOR DTC144ES	
Q206	8-729-900-89	TRANSISTOR DTC144ES	
Q209	8-729-281-52	TRANSISTOR 2SC1815-Y	
Q341	8-729-900-65	TRANSISTOR DTA144ES	
Q342	8-729-900-65	TRANSISTOR DTA144ES	
Q343	8-729-900-65	TRANSISTOR DTA144ES	
Q344	8-729-900-89	TRANSISTOR DTC144ES	
Q371	8-729-141-30	TRANSISTOR 2SC3623A-LK	
Q372	8-729-141-30	TRANSISTOR 2SC3623A-LK	
Q373	8-729-141-30	TRANSISTOR 2SC3623A-LK	
Q374	8-729-141-30	TRANSISTOR 2SC3623A-LK	
Q375	8-729-231-55	TRANSISTOR 2SC2878-AB	
Q376	8-729-231-55	TRANSISTOR 2SC2878-AB	
Q401	8-729-900-89	TRANSISTOR DTC144ES	
Q901	8-729-900-63	TRANSISTOR DTA124ES	
Q902	8-729-900-63	TRANSISTOR DTA124ES	
Q903	8-729-900-63	TRANSISTOR DTA124ES	
Q941	8-729-231-55	TRANSISTOR 2SC2878-AB	
Q942	8-729-231-55	TRANSISTOR 2SC2878-AB	
Q943	8-729-231-55	TRANSISTOR 2SC2878-AB	
Q971	8-729-231-55	TRANSISTOR 2SC2878-AB	
Q972	8-729-231-55	TRANSISTOR 2SC2878-AB	
Q973	8-729-231-55	TRANSISTOR 2SC2878-AB	
		< RESISTOR >	
R201	1-249-435-11	CARBON 33K 5% 1/4W	
R202	1-249-438-11	CARBON 56K 5% 1/4W	
R203	1-249-429-11	CARBON 10K 5% 1/4W	
R204	1-249-425-11	CARBON 4.7K 5% 1/4W	
R205	1-249-425-11	CARBON 4.7K 5% 1/4W	
R208	1-249-423-11	CARBON 3.3K 5% 1/4W	
R209	1-249-413-11	CARBON 470 5% 1/4W	
R210	1-249-429-11	CARBON 10K 5% 1/4W	
R211	1-249-410-11	CARBON 270 5% 1/4W	
R212	1-247-790-11	CARBON 20 5% 1/4W	
R213	1-247-790-11	CARBON 20 5% 1/4W	
R214	1-249-417-11	CARBON 1K 5% 1/4W	
R215	1-249-417-11	CARBON 1K 5% 1/4W	
R301	1-249-417-11	CARBON 1K 5% 1/4W	
R302	1-249-417-11	CARBON 1K 5% 1/4W	
R303	1-249-417-11	CARBON 1K 5% 1/4W	
R305	1-249-411-11	CARBON 330 5% 1/4W	
R311	1-249-423-11	CARBON 3.3K 5% 1/4W	
R312	1-249-429-11	CARBON 10K 5% 1/4W	
R313	1-249-423-11	CARBON 3.3K 5% 1/4W	
R314	1-249-429-11	CARBON 10K 5% 1/4W	
R318	1-249-441-11	CARBON 100K 5% 1/4W	
R321	1-249-417-11	CARBON 1K 5% 1/4W	
R322	1-249-417-11	CARBON 1K 5% 1/4W	
R323	1-249-417-11	CARBON 1K 5% 1/4W	
R324	1-249-418-11	CARBON 1.2K 5% 1/4W	
R330	1-249-417-11	CARBON 1K 5% 1/4W	
R331	1-249-417-11	CARBON 1K 5% 1/4W	
R332	1-247-887-00	CARBON 220K 5% 1/4W	
R342	1-249-417-11	CARBON 1K 5% 1/4W	
R343	1-249-441-11	CARBON 100K 5% 1/4W	
R344	1-249-441-11	CARBON 100K 5% 1/4W	
R345	1-249-425-11	CARBON 4.7K 5% 1/4W	
R346	1-249-425-11	CARBON 4.7K 5% 1/4W	
R347	1-249-441-11	CARBON 100K 5% 1/4W	
R348	1-249-429-11	CARBON 10K 5% 1/4W	
R351	1-249-428-11	CARBON 8.2K 5% 1/4W	
R352	1-249-428-11	CARBON 8.2K 5% 1/4W	
R353	1-249-428-11	CARBON 8.2K 5% 1/4W	
R354	1-249-428-11	CARBON 8.2K 5% 1/4W	
R355	1-249-428-11	CARBON 8.2K 5% 1/4W	
R356	1-249-428-11	CARBON 8.2K 5% 1/4W	
R357	1-249-428-11	CARBON 8.2K 5% 1/4W	
R358	1-249-428-11	CARBON 8.2K 5% 1/4W	
R359	1-247-903-00	CARBON 1M 5% 1/4W	

Note:
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Note:
Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

MAIN FUNCTION DISPLAY DSP

Ref. No.	Part No.	Description			Remark
R361	1-249-423-11	CARBON	3.3K	5%	1/4W
R362	1-249-423-11	CARBON	3.3K	5%	1/4W
R363	1-249-423-11	CARBON	3.3K	5%	1/4W
R364	1-249-423-11	CARBON	3.3K	5%	1/4W
R365	1-247-856-00	CARBON	11K	5%	1/4W
R366	1-247-856-00	CARBON	11K	5%	1/4W
R367	1-247-856-00	CARBON	11K	5%	1/4W
R368	1-247-856-00	CARBON	11K	5%	1/4W
R369	1-249-419-11	CARBON	1.5K	5%	1/4W
R370	1-249-419-11	CARBON	1.5K	5%	1/4W
R371	1-249-419-11	CARBON	1.5K	5%	1/4W
R372	1-249-419-11	CARBON	1.5K	5%	1/4W
R373	1-247-887-00	CARBON	220K	5%	1/4W
R374	1-247-887-00	CARBON	220K	5%	1/4W
R375	1-249-409-11	CARBON	220	5%	1/4W
R376	1-249-409-11	CARBON	220	5%	1/4W
R377	1-249-409-11	CARBON	220	5%	1/4W
R378	1-249-409-11	CARBON	220	5%	1/4W
R379	1-249-425-11	CARBON	4.7K	5%	1/4W
R380	1-249-425-11	CARBON	4.7K	5%	1/4W
R381	1-249-425-11	CARBON	4.7K	5%	1/4W
R382	1-249-425-11	CARBON	4.7K	5%	1/4W
R383	1-249-414-11	CARBON	560	5%	1/4W
R384	1-249-414-11	CARBON	560	5%	1/4W
R385	1-249-393-11	CARBON	10	5%	1/4W
R386	1-249-393-11	CARBON	10	5%	1/4W
R389	1-249-414-11	CARBON	560	5%	1/4W
R390	1-249-414-11	CARBON	560	5%	1/4W
R401	1-249-433-11	CARBON	22K	5%	1/4W
R402	1-249-433-11	CARBON	22K	5%	1/4W
R403	1-249-433-11	CARBON	22K	5%	1/4W
R404	1-249-425-11	CARBON	4.7K	5%	1/4W
R405	1-249-425-11	CARBON	4.7K	5%	1/4W
R406	1-249-425-11	CARBON	4.7K	5%	1/4W
R407	1-249-433-11	CARBON	22K	5%	1/4W
R408	1-249-441-11	CARBON	100K	5%	1/4W
R409	1-247-864-11	CARBON	24K	5%	1/4W
R410	1-247-880-11	CARBON	110K	5%	1/4W
R411	1-249-440-11	CARBON	82K	5%	1/4W
R412	1-247-876-11	CARBON	75K	5%	1/4W
R413	1-249-440-11	CARBON	82K	5%	1/4W
R414	1-247-874-11	CARBON	62K	5%	1/4W
R415	1-249-435-11	CARBON	33K	5%	1/4W
R416	1-247-878-00	CARBON	91K	5%	1/4W
R417	1-247-878-00	CARBON	91K	5%	1/4W
R418	1-247-878-00	CARBON	91K	5%	1/4W
R419	1-249-440-11	CARBON	82K	5%	1/4W
R420	1-249-440-11	CARBON	82K	5%	1/4W
R421	1-249-393-11	CARBON	10	5%	1/4W

Ref. No.	Part No.	Description			Remark
R422	1-249-393-11	CARBON	10	5%	1/4W
R423	1-249-393-11	CARBON	10	5%	1/4W
R424	1-249-411-11	CARBON	330	5%	1/4W
R425	1-249-429-11	CARBON	10K	5%	1/4W
R426	1-249-429-11	CARBON	10K	5%	1/4W
R427	1-249-429-11	CARBON	10K	5%	1/4W
R428	1-249-429-11	CARBON	10K	5%	1/4W
R429	1-249-429-11	CARBON	10K	5%	1/4W
R430	1-249-429-11	CARBON	10K	5%	1/4W
R431	1-249-429-11	CARBON	10K	5%	1/4W
R432	1-249-429-11	CARBON	10K	5%	1/4W
R450	1-249-435-11	CARBON	33K	5%	1/4W
R451	1-249-441-11	CARBON	100K	5%	1/4W
R452	1-249-437-11	CARBON	47K	5%	1/4W
R453	1-249-405-11	CARBON	100	5%	1/4W
R454	1-249-405-11	CARBON	100	5%	1/4W
R460	1-249-435-11	CARBON	33K	5%	1/4W
R461	1-249-441-11	CARBON	100K	5%	1/4W
R462	1-249-437-11	CARBON	47K	5%	1/4W
R463	1-249-405-11	CARBON	100	5%	1/4W
R464	1-249-405-11	CARBON	100	5%	1/4W
R471	1-249-422-11	CARBON	2.7K	5%	1/4W
R472	1-249-424-11	CARBON	3.9K	5%	1/4W
R473	1-249-427-11	CARBON	6.8K	5%	1/4W
R474	1-249-432-11	CARBON	18K	5%	1/4W
R476	1-249-422-11	CARBON	2.7K	5%	1/4W
R477	1-249-424-11	CARBON	3.9K	5%	1/4W
R478	1-249-427-11	CARBON	6.8K	5%	1/4W
R479	1-249-432-11	CARBON	18K	5%	1/4W
R481	1-249-422-11	CARBON	2.7K	5%	1/4W
R482	1-249-424-11	CARBON	3.9K	5%	1/4W
R483	1-249-427-11	CARBON	6.8K	5%	1/4W
R484	1-249-432-11	CARBON	18K	5%	1/4W
R501	1-249-422-11	CARBON	2.7K	5%	1/4W
R502	1-249-424-11	CARBON	3.9K	5%	1/4W
R503	1-249-427-11	CARBON	6.8K	5%	1/4W
R504	1-249-432-11	CARBON	18K	5%	1/4W
R505	1-249-422-11	CARBON	2.7K	5%	1/4W
R506	1-249-424-11	CARBON	3.9K	5%	1/4W
R507	1-249-427-11	CARBON	6.8K	5%	1/4W
R508	1-249-432-11	CARBON	18K	5%	1/4W
R509	1-249-422-11	CARBON	2.7K	5%	1/4W
R805	1-249-409-11	CARBON	220	5%	1/4W
R806	1-249-425-11	CARBON	4.7K	5%	1/4W
R807	1-249-434-11	CARBON	27K	5%	1/4W
R808	1-249-430-11	CARBON	12K	5%	1/4W
R809	1-247-850-11	CARBON	6.2K	5%	1/4W
R810	1-247-844-11	CARBON	3.6K	5%	1/4W
R811	1-247-838-00	CARBON	2K	5%	1/4W

MAIN FUNCTION DISPLAY DSP POWER HEADPHONE VOL HEADPHONE JACK

Ref. No.	Part No.	Description			Remark
R812	1-249-416-11	CARBON	820	5%	1/4W
R901	1-249-417-11	CARBON	1K	5%	1/4W
R902	1-249-417-11	CARBON	1K	5%	1/4W
R903	1-249-417-11	CARBON	1K	5%	1/4W
R905	1-249-417-11	CARBON	1K	5%	1/4W
R908	1-249-429-11	CARBON	10K	5%	1/4W
R909	1-249-429-11	CARBON	10K	5%	1/4W
R910	1-249-429-11	CARBON	10K	5%	1/4W
R911	1-249-429-11	CARBON	10K	5%	1/4W
R912	1-249-429-11	CARBON	10K	5%	1/4W
R915	1-249-441-11	CARBON	100K	5%	1/4W
R916	1-249-441-11	CARBON	100K	5%	1/4W
R917	1-249-441-11	CARBON	100K	5%	1/4W
R918	1-249-405-11	CARBON	100	5%	1/4W
R919	1-249-405-11	CARBON	100	5%	1/4W
R921	1-249-417-11	CARBON	1K	5%	1/4W
R922	1-249-420-11	CARBON	1.8K	5%	1/4W
R923	1-249-417-11	CARBON	1K	5%	1/4W
R924	1-249-417-11	CARBON	1K	5%	1/4W
R925	1-249-417-11	CARBON	1K	5%	1/4W
R941	1-249-419-11	CARBON	1.5K	5%	1/4W
R943	1-249-441-11	CARBON	100K	5%	1/4W
R945	1-249-425-11	CARBON	4.7K	5%	1/4W
R946	1-249-425-11	CARBON	4.7K	5%	1/4W
R947	1-249-425-11	CARBON	4.7K	5%	1/4W
R948	1-249-421-11	CARBON	2.2K	5%	1/4W
R949	1-249-422-11	CARBON	2.7K	5%	1/4W
R950	1-247-836-11	CARBON	1.6K	5%	1/4W
R951	1-247-828-11	CARBON	750	5%	1/4W
R952	1-247-832-11	CARBON	1.1K	5%	1/4W
R953	1-249-410-11	CARBON	270	5%	1/4W
R971	1-249-419-11	CARBON	1.5K	5%	1/4W
R973	1-249-441-11	CARBON	100K	5%	1/4W
R975	1-249-425-11	CARBON	4.7K	5%	1/4W
R976	1-249-425-11	CARBON	4.7K	5%	1/4W
R977	1-249-425-11	CARBON	4.7K	5%	1/4W
R978	1-249-421-11	CARBON	2.2K	5%	1/4W
R979	1-249-422-11	CARBON	2.7K	5%	1/4W
R980	1-247-836-11	CARBON	1.6K	5%	1/4W
R981	1-247-828-11	CARBON	750	5%	1/4W
R982	1-247-832-11	CARBON	1.1K	5%	1/4W
R983	1-249-410-11	CARBON	270	5%	1/4W
		< VARIABLE RESISTOR >			
RV801	1-241-509-11	RES, VAR, CARBON 10K (EFFECT MIN/MAX)			

Ref. No.	Part No.	Description	Remark
		< SWITCH >	
S201	⚠ 1-571-722-11	SWITCH, VOLTAGE SELECTION (E)	
S471	1-554-303-21	SWITCH, TACTILE (1)	
S472	1-554-303-21	SWITCH, TACTILE (2)	
S473	1-554-303-21	SWITCH, TACTILE (3)	
S474	1-554-303-21	SWITCH, TACTILE (4)	
S475	1-554-303-21	SWITCH, TACTILE (5)	
S476	1-554-303-21	SWITCH, TACTILE (6)	
S477	1-554-303-21	SWITCH, TACTILE (7)	
S478	1-554-303-21	SWITCH, TACTILE (8)	
S479	1-554-303-21	SWITCH, TACTILE (9)	
S480	1-554-303-21	SWITCH, TACTILE (10)	
S481	1-554-303-21	SWITCH, TACTILE (>10)	
S482	1-554-303-21	SWITCH, TACTILE (MUSIC SCAN)	
S483	1-554-303-21	SWITCH, TACTILE (CHECK)	
S484	1-554-303-21	SWITCH, TACTILE (CLEAR)	
S485	1-554-303-21	SWITCH, TACTILE (FADER)	
S501	1-554-303-21	SWITCH, TACTILE (⏮)	
S502	1-554-303-21	SWITCH, TACTILE (⏭)	
S503	1-554-303-21	SWITCH, TACTILE (■)	
S504	1-554-303-21	SWITCH, TACTILE (OPEN/CLOSE ⏏)	
S505	1-554-303-21	SWITCH, TACTILE (DISC SKIP)	
S506	1-554-303-21	SWITCH, TACTILE (EDIT/TIME FADE)	
S507	1-554-303-21	SWITCH, TACTILE (◀◀)	
S508	1-554-303-21	SWITCH, TACTILE (▶▶)	
S509	1-554-303-21	SWITCH, TACTILE (▶)	
S510	1-554-303-21	SWITCH, TACTILE (❚❚)	
S511	1-554-303-21	SWITCH, TACTILE (TIME)	
S512	1-554-303-21	SWITCH, TACTILE (REPEAT)	
S801	1-554-303-21	SWITCH, TACTILE (HALL)	
S802	1-554-303-21	SWITCH, TACTILE (CHURCH)	
S803	1-554-303-21	SWITCH, TACTILE (JAZZ CLUB)	
S804	1-554-303-21	SWITCH, TACTILE (STADIUM)	
S805	1-554-303-21	SWITCH, TACTILE (DISCO)	
S806	1-554-303-21	SWITCH, TACTILE (FLAT)	
		< CRYSTAL >	
X351	1-567-965-11	VIBRATOR, CRYSTAL (22.5MHz)	
X901	1-577-358-21	VIBRATOR, CERAMIC (4MHz)	

****

* 1-639-469-11 POWER SW BOARD
****
* 1-639-470-11 HEADPHONE VOL BOARD
****
* 1-639-471-11 HEADPHONE JACK BOARD
****

* 4-922-980-01 HOLDER (LED)

Note:
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Note:
Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

POWER | HEADPHONE VOL | HEADPHONE JACK | TABLE MOTOR | LOADING MOTOR | OPEN/UP SW

Ref. No.	Part No.	Description			Remark
		< CAPACITOR >			
C551	1-161-494-00	CERAMIC	0.022uF	25V	
C701	1-162-291-31	CERAMIC	560PF 10%	50V	
C702	1-162-291-31	CERAMIC	560PF 10%	50V	
C703	1-164-159-11	CERAMIC	0.1uF	50V	
C704	1-161-494-00	CERAMIC	0.022uF	25V	
		< CONNECTOR >			
CN702	* 1-568-832-11	SOCKET, CONNECTOR 13P			
		< DIODE >			
D601	8-719-970-49	DIODE BR4361F (VOL POINT)			
		< IC >			
IC551	8-741-100-48	IC SBX1610-59			
		< JACK >			
J701	1-568-519-21	JACK, LARGE TYPE (HEADPHONES) (C615)			
J701	1-568-519-41	JACK, LARGE TYPE (HEADPHONES) (C67ES)			
		< RESISTOR >			
R551	1-249-422-11	CARBON	2.7K	5% 1/4W	
R552	1-249-424-11	CARBON	3.9K	5% 1/4W	
R553	1-249-427-11	CARBON	6.8K	5% 1/4W	
R554	1-249-432-11	CARBON	18K	5% 1/4W	
R555	1-249-422-11	CARBON	2.7K	5% 1/4W	
R556	1-249-424-11	CARBON	3.9K	5% 1/4W	
R557	1-249-427-11	CARBON	6.8K	5% 1/4W	
		< VARIABLE RESISTOR >			
RV701	1-238-750-11	RES, VAR, CARBON 10K/10K (PHONE/LINE OUT LEVEL)			
		< SWITCH >			
S551	1-554-303-21	SWITCH, TACTILE (DISC 1)			
S552	1-554-303-21	SWITCH, TACTILE (DISC 2)			
S553	1-554-303-21	SWITCH, TACTILE (DISC 3)			
S554	1-554-303-21	SWITCH, TACTILE (DISC 4)			
S555	1-554-303-21	SWITCH, TACTILE (DISC 5)			
S556	1-554-303-21	SWITCH, TACTILE (CONTINUE)			
S557	1-554-303-21	SWITCH, TACTILE (SHUFFLE)			
S558	1-554-303-21	SWITCH, TACTILE (PROGRAM)			
S559	1-554-303-21	SWITCH, TACTILE (PEAK SEARCH)			
S560	1-572-714-11	SWITCH, PUSH (POWER ON/OFF)			

Ref. No.	Part No.	Description			Remark
	* 1-638-729-11	TABLE MOTOR BOARD			
		**********			
	* 1-638-730-11	LOADING MOTOR BOARD			
		**********			
	* 1-638-731-11	OPEN/UP SW BOARD			
		**********			
		< CAPACITOR >			
C704	1-161-375-00	CERAMIC	0.0022uF	20% 50V	
C705	1-161-375-00	CERAMIC	0.0022uF	20% 50V	
		< CONNECTOR >			
CN705	* 1-566-214-11	PIN, CONNECTOR (PC BOARD) 2P			
CN707	* 1-573-044-11	SOCKET, CONNECTOR			
		< DIODE >			
D701	8-719-970-19	DIODE GP1A521			
		< RESISTOR >			
R701	1-249-416-11	CARBON	820	5% 1/4W	
		< SWITCH >			
S702	1-571-300-21	SWITCH, ROTARY (OPEN/UP)			
		**********			
		MISCELLANEOUS			
		**********			
12	1-590-834-11	WIRE, FLAT TYPE (13 CORE)			
13	1-590-835-11	WIRE, FLAT TYPE (34 CORE)			
54	1-452-340-21	MAGNET			
65	1-590-849-11	WIRE, FLAT TYPE (5 CORE)			
101	1-535-892-11	JUMPER, FILM (WITH TERMINAL)			
124	⚠ 1-574-358-31	CORD, POWER (WITH CONNECTOR) (Australian)			
124	⚠ 1-575-651-21	CORD, POWER (AEP)			
124	⚠ 1-575-653-21	CORD, POWER (E)			
124	⚠ 1-590-836-11	CORD, POWER (US, Canadian)			
125	⚠ 1-569-007-11	ADAPTOR, CONVERSION 2P (E)			
151	⚠ 8-848-144-11	DEVICE, OPTICAL KSS-240A			
152	1-575-001-11	WIRE, FLAT TYPE (12 CORE)			
M101	X-4917-504-1	MOTOR ASSY (SLED)			
M102	X-4917-523-3	MOTOR ASSY (SPINDLE)			
M701	A-4604-585-A	MOTOR ASSY, ROTARY (TABLE)			
M702	A-4604-834-A	MOTOR ASSY, LOADING			
S701	1-572-713-11	SWITCH, PUSH (WITH CONNECTOR) (DOWN)			
T901	⚠ 1-450-133-11	TRANSFORMER, POWER (US, Canadian)			
T901	⚠ 1-450-134-11	TRANSFORMER, POWER (AEP, Australian)			
T901	⚠ 1-450-135-11	TRANSFORMER, POWER (E)			

Note:
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Note:
Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

MC-Service

Ref. No.	Part No.	Description	Remark
		ACCESSORY & PACKING MATERIAL	
		**********	
	1-465-729-11	REMOTE COMMANDER	
	1-558-271-11	CORD, CONNECTION (C67ES)	
	1-559-533-11	CORD, CONNECTION (C615)	
	3-701-630-00	BAG, POLYETHYLENE	
	3-707-584-01	COVER, BATTERY	
	3-753-146-11	MANUAL, INSTRUCTION (English, French, Spanish, Portuguese) (AEP, E, Canadian)	
	3-753-146-21	MANUAL, INSTRUCTION (Engliah) (C615:US, Australian)	
	3-753-146-41	MANUAL, INSTRUCTION (German, Dutch, Swedish, Italian) (AEP)	
	3-753-147-21	MANUAL, INSTRUCTION (English) (C67ES)	
	3-795-629-11	INSTRUCTION	
	4-937-945-01	PLATE (TRANSPORT), LOCK	
*	4-941-548-01	LABEL, CLASS 1 (AEP, E, Australian)	
*	4-944-109-41	INDIVIDUAL CARTON (C615)	
*	4-944-109-51	INDIVIDUAL CARTON (C67ES)	
*	4-944-110-01	CUSHION (FRONT)	
*	4-944-111-01	CUSHION (REAR)	

****

HARDWARE LIST

****

# 1	7-685-647-79	SCREW +BVTP 3X10 TYPE2 N-S
# 2	7-682-548-04	SCREW +BVTT 3X8 (S)
# 3	7-685-870-01	SCREW +BVTT 3X5 (S)
# 4	7-685-648-79	SCREW +BVTP 3X12 TYPE2 N-S
# 5	7-682-554-04	SCREW +B 3X25
# 6	7-685-648-79	SCREW (M3X12), TAPPING
# 7	7-685-136-19	SCREW +P 2.6X12 TYPE2 NON-SLIT
# 8	7-685-647-79	SCREW, TAPPING
# 9	7-621-255-15	SCREW +P 2X3
#10	7-685-134-19	SCREW +BTP 2.6X8 TYPE2 N-S
#11	7-683-401-04	BOLT, HEXAGON SOCKET 3X4 (C67ES)

9-956-432-11

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